VOLUME NO. 1
(From pages 1 to 126 inclusive)

Includes the following Bureaus

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EXPLANATORY NOTES

OF

INCREASES, DECREASES, AND CHANGES IN LANGUAGES

IN THE BUDGET FOR THE

DEPARTMENT OF AGRICULTURE

FOR THE

FISCAL YEAR ENDING JUNE 30, 1934

AND OF

WORK DONE UNDER EACH OF THE APPROPRIATION ITEMS

(CONFIDENTIAL UNTIL THE 1934 BUDGET
IS SUBMITTED TO CONGRESS)

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STATEMENT OF APPROPRIATIONS 1932 and 1933, AND BUDGET ESTIMATE FOR 1934

SUMMARY BY MAIN GROUP HEADS

Group	Appropriations 1932	Appropriations 1933	Budget Estimate 1934 Total	Budget Estimate 1934 Compared with Appns 1933
1. Ordinary activities	$70,527,294	$60,404,600	$56,413,063	-$3,991,537
2. Payments to States for agricultural experiment stations and extension service; and cooperative forestry activities, including fire prevention	16,539,936	16,073,636	15,760,059	-313,577
3. Emergency relief loans	22,125,000	- -	- -	- -
4. Road funds	188,100,000	241,405,000	46,641,787	-194,763,213
5. Special items: Fighting forest fires (deficiency item)	4,260,000	- -	- -	- -
6. TOTAL, ALL PURPOSES	301,552,230	317,883,236	118,814,909	-199,068,327

SUMMARY, BY GROUPS AND BUREAU UNITS

Group and Bureau Unit	Appropriations 1932	Appropriations 1933	Budget Estimate 1934 1934	Budget Estimate 1934 Compared with Appns 1933
1. ORDINARY ACTIVITIES:				
Office of the Secretary	(a) 1,322,115	1,206,547	1,164,561	- 41,986
Office of Information	1,420,961	1,335,800	1,276,287	- 59,513
Library	110,620	106,100	100,223	- 5,877
Office of Experiment Stations (exclusive of payments to States)	399,410	294,294	226,961	- 67,333
Extension Service (exclusive of payments to States)	1,793,560	1,688,170	1,617,907	- 70,263
Weather Bureau	4,497,720	4,164,038	3,738,683	- 425,355
Bureau of Animal Industry	16,041,695	15,283,622	14,435,254	- 848,368
Bureau of Dairy Industry	796,990	717,448	655,130	62,318
Bureau of Plant Industry	(b) 5,839,238	4,930,874	4,547,210	- 383,664

(a) Includes $50,000 provided by 2nd Def. Act, 1931, and $9,100 provided by 2nd Def. act, 1932, for rent in District of Columbia.
(b) Includes $13,332 provided by 2nd Def. act, 1931, for Dutch elm disease.

Group and Bureau Unit	Appropriations 1932	Appropriations 1933	Budget Estimate 1934 Total	Budget Estimate 1934 Compared with Appns 1933
ORDINARY ACTIVITIES (Continued)				
Forest Service (exclusive of forest roads, payments to States, and forest-fire deficiency)	16,860,120	12,467,239	11,806,668	-660,571
Bureau of Chemistry & Soils	1,947,201	1,825,080	1,706,941	-118,139
Bureau of Entomology	2,863,740	2,471,700	2,298,473	-173,227
Bureau of Biological Survey	2,229,170	1,756,177	1,513,137	-243,040
Bureau of Public Roads (exclusive of Federal-aid-highways)	179,940	- -	- -	- -
Bureau of Agricultural Engineering	583,840	518,690	461,997	-56,693
Bureau of Agricultural Economics	7,241,136	6,649,841	6,170,402	-479,439
Bureau of Home Economics	246,700	233,365	212,749	-20,616
Bureau of Plant Quarantine	3,747,930	2,490,125	2,366,895	-123,230
Grain Futures Administration	(a) 221,480	218,838	201,370	-17,468
Food & Drug Administration	1,810,228	1,716,167	1,596,181	-119,986
Soil Erosion:				
Forest Service	100,000	89,160	83,814	- 5,346
Chemistry and Soils	156,850	100,000	96,264	- 3,736
Agricultural Engineering	73,150	100,000	96,396	- 3,604
Experiments and Demonstrations in Livestock Production	43,500	41,325	39,560	- 1,765
TOTAL, ORDINARY ACTIVITIES	70,527,294	60,404,600	56,413,063	-3,991,537
2. PAYMENTS TO STATES (Exclusive of road funds):				
State agricultural experiment stations, for research under Hatch, Adams, and Purnell Acts (Office of Experiment Stations)	4,357,000	4,374,000	4,381,000	+ 7,000
State colleges of agriculture, for extension work, under Smith-Lever and supplemental Acts (Extension Service)	8,672,936	8,728,096	8,738,096	+ 10,000
Cooperative fire protection (Forest Service)	1,775,000	1,611,580	1,601,233	- 10,347
Cooperative distribution of forest planting stock (Forest Service)	95,000	79,960	74,730	- 5,230
Payments to States from National-forest receipts (Forest Service)	1,640,000	1,280,000	965,000	-315,000
TOTAL, PAYMENTS TO STATES, EXCLUSIVE OF ROAD FUNDS	16,539,936	16,073,636	15,760,059	-313,577

(a) Includes $22,500 provided by 2nd Def. act, 1931.

Group and Bureau Unit	Appropriations 1932	Appropriations 1933	Budget Estimate 1934 Total	Budget Estimate 1934 Compared with Appns 1933
3. EMERGENCY RELIEF LOANS:				
Loans to farmers in storm and drought-stricken areas, Southeastern States	2,000,000	- -	- -	- -
Agricultural credit and rehabilitation emergency relief loans .....(a)	20,000,000	(b)	- -	- -
Collection of seed loans ...	125,000	(c)	(d)	- -
TOTAL, EMERGENCY RELIEF LOANS	22,125,000	- -	- -	- -
4. ROAD FUNDS:				
Regular Program:				
Federal-aid highways .....(e)	175,000,000	100,000,000	39,814,387	60,185,613
Forest roads and trails, under Federal Highway Act	12,500,000	8,905,000	6,457,400	2,447,600
Roads and trails for States, paid from national-forest receipts	600,000	500,000	370,000	130,000
Emer. Relief and Construction Act:				
Fed.-Aid (Advances to States)	- -	120,000,000	- -	-120,000,000
Public Land Highways	- -	2,000,000	- -	- 2,000,000
Improv., Nat'l. forests .	- -	5,000,000	- -	- 5,000,000
Hways within Nat'l forests	- -	5,000,000	- -	- 5,000,000
TOTAL, ROAD FUNDS	188,100,000	241,405,000	46,641,787	-194,763,213
5. SPECIAL ITEM:				
Fighting forest fires (deficiency item)	4,260,000	- -	- -	- -
TOTAL, SPECIAL ITEM.	4,260,000	- -	- -	- -
6. TOTAL, ALL PURPOSES	301,552,230	317,883,236	118,814,909	-199,068,327

(a) Included in Interior Department appropriation act, 1932.

(b) $10,000,000 of 1932 appropriation provided by Public Resolution 11 of March 3, 1932, reappropriated and made immediately available.

(c) $500,000 of unexpended balance of appropriation provided under Public Resolution 114, approved January 15, 1931, continued available until June 30, 1933.

(d) Not to exceed $500,000 of the repayments made during the fiscal year 1933 to the appropriations contained in Public Resolution 114, and Interior Department appropriation act 1932, is made available for 1934.

(e) Includes $50,000,000 provided by 1st Def. act, 1932.

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OFFICE OF THE SECRETARY

(a) SALARIES, OFFICE OF THE SECRETARY

Appropriation, 1932	$778,815
Appropriation, 1933	821,547
Budget Estimate, 1934	731,347
Decrease	90,200

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Secretary of Agriculture	$15,000	$15,000	$15,000	- - -
Assistant Secretary and other personal services	744,670	799,253	775,253	$24,000(1)
Extra labor and emergency employments	7,294	7,294	7,294	- - -
Legislative furlough deduction	- - -	- - -	-66,200	66,200(2)
Total	766,964	821,547	731,347	90,200

(Note: There is an apparent decrease of $90,200 in this item, but since $17,920 has been transferred to other appropriations and 3 building guards with salaries aggregating $3,900 have been transferred to this appripriation from another fund with a corresponding reduction in that appropriation, there is an actual decrease of $76,180 in working funds.)

(1) The reduction of $90,200 is explained as follows:

(a) A reduction of $5,500, which is made possible by the retirement of the Real Estate Officer of the Department and the consolidation of the duties of this position with other positions.

(b) An apparent increase of $3,900, to cover the salaries of three watchmen transferred from the appropriation for fertilizer investigations, Bureau of Chemistry and Soils, with a corresponding reduction in that appropriation. These building guards are under the supervision of the Department's central watch force and in conformity with the general plan of operation their salaries should be transferred to the funds of the Office of the Secretary.

(c) An apparent decrease of $22,400, involving an actual reduction of $4,480 and the transfer of the balance ($17,920) to other Departmental appropriations. Language to provide for the development of a centralized supply organization was included in the 1933 appropriation act. The General Accounting Office objected to certain features of the detailed procedure involved. In the Budget for 1934 it is proposed to amend the provision contained in the 1933 Appropriation Act so as to meet the Comptroller's objections. The plan originally proposed by the Department, as presented in the Budget for 1933 and included in the Appropriation Act, contemplated that the cost of handling charges, as represented in the salaries

of additional employees, over and above those now appropriated for in the Central Supply Section, would be reimbursable to the Office of the Secretary as a part of the cost of supplies issued. The plan of the General Accounting Office, which has been included in the Budget for 1934, provides that the cost of supplies furnished to the users will include all items of expense involved in providing such service. In order to put the new plan into effect without imposing upon the bureaus of the Department an unreasonable and unjustifiable increase in the cost of supplies, the Budget estimate provides for the distribution to other appropriations of $17,920 of the $22,400 now utilized by the Office of the Secretary for furnishing this service and the remaining $4,480 constitutes an outright reduction. In anticipation of savings which will be effected by reason of connection therewith. The amounts to be distributed, on the basis of their previous participation in the central supply service, and the bureaus concerned are shown in the following list:

Bureau	Amount
Bureau of Agricultural Economics	$4,769
Bureau of Agricultural Engineering	287
Bureau of Animal Industry	490
Bureau of Biological Survey	324
Bureau of Chemistry and Soils	587
Bureau of Dairy Industry	197
Bureau of Entomology	633
Office of Experiment Stations	203
Extension Service	2,154
Food and Drug Administration	670
Forest Service	559
Grain Futures Administration	170
Bureau of Home Economics	741
Office of Information	603
Department Library	45
Bureau of Plant Industry	1,667
Bureau of Plant Quarantine	1,252
Office of the Secretary (Miscellaneous Expenses)	1,754
Weather Bureau	815
Total amount transferred	17,920

With the inauguration of this proposal the cost of the supplies furnished will include not only the net cost of such materials, but also all handling charges. The development of the building program of the Department and the consequent bringing together of the personnel into a single group of buildings will permit the centralization of the supply activities on the basis of greater efficiency of operation and general improvement in the service available to all branches of the Department. To avoid embarrassment to the work this consolidation will be accomplished gradually as the various units are moved to the new structure and the complete development of the project will not be accomplished until all organizations have been moved to the new building. The flexibility of the procedure as outlined meets with the approval of the General Accounting Office, the Bureau of the Budget, and the Bureau of Efficiency, and should permit the placing of the supply service of the Department on a thoroughly economical and effective basis and at the same time assures ability on the part of the Central Supply Section to render service adequate to meet the demands upon it.

(2) $66,200 reduction on account of continuation of legislative furlough.

CHANGE IN LIMITATION ON FOREIGN QUARTERS ALLOWANCE

The reduction from $55,000 to $27,500 is made in view of the fact that the amounts in the Budget estimates for 1934 under the various bureaus concerned are limited to one-half of the maximum allowable under the "Standardized Regulations to Govern Allowances for Living Quarters, etc." Budget Circular 298.

WORK UNDER THIS APPROPRIATION

This appropriation provides salaries for employees of the office of the Secretary of Agriculture, Assistant Secretary, the Director of Scientific Work, the Director of Regulatory Work (office force paid by Food and Drug Administration), the Director Extension Work (office force paid by Extension Service), the Director of Personnel and Business Administration, the personnel, organization and classification offices, the budget, finance, disbursing and accounting offices, the offices dealing with purchases, sales and traffic, the division of operation, mails and files, building maintenance and guards forces, telephone and telegraph, post office, etc., and the Office of the Solicitor. This organization comprises the administration of the scientific, extension, regulatory, personnel and business activities of the Department and serves in planning the organization of the work, the expenditure of funds, the contracting for the purchase of materials and equipment, the handling of mails and files, building maintenance, safeguarding the property and buildings of the Department, the operation of the telephone and telegraph offices, and the initiation and direction of all phases of legal work involved in the Department's activities.

(b) COMPENSATION, MECHANICAL SHOPS AND POWER PLANT

Appropriation, 1932	$125,000
Appropriation, 1933	125,000
Budget Estimate, 1934	120,960
Decrease	4,040

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimates 1934	Decrease
Compensation, Mechanical Shops and Power Plant	$115,963*	$125,000	$120,960	$4,040 (1)

*Includes $1,078 expended in 1931 under immediately available authorization.

(1) The decrease of $4,040 is explained as follows:

(a) An increase of $4,320 for additional elevator operators for the new units of the Department's South Building scheduled to be completed during the fiscal year 1934. This amount is required to provide for the compensation of four additional elevator operators at $1,080 each per annum. Ten elevators are provided in Wings 6 and 7 of the new South Building, which are scheduled to be completed about January 1, 1934. Present construction plans also contemplate the completion during the latter part of the present fiscal year (1933) of Wing 1, containing 5 elevators. The 1933 Appropriation Act contains provision for the salaries of operators for Wing 1 for 4 months

of that fiscal year and provision must be made in the 1934 appropriation for the operation of these elevators for the entire fiscal year. It is estimated that 1.1 operators are required for the continuous operation of each elevator due to the absence of operators on annual and sick leave and the necessity of maintaining extra service at night and on Saturday afternoons:

Wing 1:	
Operation of 5 elevators requires 1.1 operators per car (8 months each, 80% of time)	2.9 operators
Wing 6 and 7:	
Operation of 10 elevators requires 1.1 operators per car (6 months each, 80% of time)	4.4 operators
	7.3 operators
Less operators to be released incident to abandonment of Willard and Chemistry Buildings	3.3 operators
Additional personnel required	4.0 operators

With the exception of the Willard and Chemistry Buildings, the structures to be abandoned are of the "walk-up" type, while with the occupancy of the new Extensible (South) Building, which comprises six floors and basement, it is essential to provide adequate elevator service in order that the transportation of employees may be accomplished at a minimum of expense. To carry out this desire it is estimated that the continuous operation of four cars in each wing and the part-time operation of the fifth car, or an average of 80 per cent operation of all cars, will be necessary.

(b) An increase of $2,640 for the compensation of temporary firemen (four employees for six months each). The anticipated occupancy during the 1933-34 heating season of additional units of the Department's new Extensible (South) Building will increase beyond its maximum capacity the heating load on the Department's power plant and will necessitate the bringing into operation, during the winter of 1933-1934, of the greenhouse auxiliary plant to heat the Department's experimental greenhouses. The services of four temporary firemen, for a period of approximately six months each, will be required during the fiscal year 1934 to operate the auxiliary heating plant.

(c) $11,000 reduction on account of continuation of legislative furlough.

CHANGE IN LANGUAGE

Amendment of the language of this item by the addition of the following, is recommended:

> "Provided, That such portion of this amount as may be necessary shall be available for transfer to the appropriation 'Miscellaneous Expenses, Department of Agriculture' for the purposes of that appropriation."

Information has been received from the Treasury Department that this Department will be required to reimburse the Central Heating Plant for all steam furnished. As the cost of the steam will represent not only the value of the fuel consumed, but also the salaries of engineers, firemen, and laborers, the Department's appropriation for fuel will not be sufficient to provide this reimbursement. However, employees now connected with the Department's power plant will be dropped when operation of the Central Heating Plant is initiated and the amount remaining unexpended as the result of this action should be sufficient to pay the balance of the reimbursement. To accomplish this, it

will be necessary to transfer these funds from this appropriation to "Miscellaneous Expenses." The plans of the Treasury Department provide for the completion of the Central Heating Plant about January 1, 1934, but a project of this size and complexity involves possibility of delay and the opening date for the operation of this central plant can not be accurately estimated. The language proposed will enable the Department to reimburse the Central Heating Plant for the cost of steam furnished without regard to possible delays in the initiation of this service.

WORK UNDER THIS APPROPRIATION

This appropriation provides the compensation of the personnel in the Mechanical Shops and Power Plant of the Department. This force performs work in connection with the repair and upkeep of buildings, the construction of apparatus and models for the various bureaus of the Department, the operation of elevators and motor transport service, and the maintenance and operation of the power plant which furnishes heat, laboratory steam, vacuum, refrigeration, etc., to all buildings on or near the Department reservation. Under the law the work performed by the Mechanical Shops for the several bureaus of the Department is reimbursed to the appropriation at cost, but expenditures for general operations in the maintenance of the Department, such as the power plant, elevator service, repairs to plumbing, heating, and electric systems, and the like, which require practically the entire base appropriation, are not reimbursable. The work performed by this organization is necessary for the efficient conduct of the work of the Department and the upkeep and repair of its buildings.

(c) MISCELLANEOUS EXPENSES, DEPARTMENT OF AGRICULTURE

Appropriation, 1932	$289,200
Appropriation, 1933	190,000
Budget Estimate, 1934	267,254
Increase	77,254

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Increase
Miscellaneous Expenses, Department of Agriculture	$223,403*	$190,000	$278,254	$77,254 (1)

*Includes $2,303 expended in 1931 under immediately available authorization.

(Note: There is an apparent increase of $77,254 in this appropriation, but since $1,754 is transferred from the appropriation "Salaries, Office of the Secretary" with a corresponding reduction in that appropriation, there is an actual increase of $75,500 in working funds.)

(1) The increase of $77,254 is explained as follows:

(a) A reduction of $840, which amount can be dropped, as a non-recurring charge for the installation of the night telephone switchboard. The translation of the Department from manual to automatic telephone operation made it necessary to install a small manually-operated switchboard to handle calls during other than the regular office hours.

(b) An apparent increase of $1,754 is represented by the transfer from the appropriation "Salaries, Office of the Secretary" to be used for payment of supply handling charges for the offices comprising the immediate Office of the Secretary. Under the method of operation proposed in the 1934 Budget, all organizations participating in the activities of the centralized supply room will be required to pay as part of the cost of the supplies furnished amounts representing the handling charges for such service.

(c) $76,340 increase for expenses incident to occupancy of the new units of the Department's Extensible (South) Building. The contracts for the completion of the South Building have been awarded by the Treasury Department and under the schedule provided, four of the five wings involved in this operation will be completed during the fiscal year 1934. This contemplates the occupancy of approximately 750,000 square feet of office and laboratory space and the increases requested are necessary to permit the Department to occupy and maintain these quarters. Of the amount requested, $48,900 represents non-recurring items which may be dropped from the 1935 Budget, and, with the addition of $6,000 provided for window blinds in the 1933 Appropriation Act, a total of $54,900, as shown in the following statement, will be subject to elimination:

Moving	$23,000
Electric current charges	6,500
Window blinds	24,000
Scrubbers	1,400
Total	54,900

The various increases requested are as follows:

$15,440 increase for fuel consumption for heating the additional units. A careful estimate indicates that the requirements for fuel represent an increase of $15,440 over the demand for the fiscal year 1933. In making this computation consideration has been given to the cost of heating structures to be abandoned, and the amount estimated represents the net increase in fuel consumption. One of the large structures to be abandoned is heated at the expense of the lessor and in other instances the organizations are being moved from temporary or other structures for which the Department has not been required to furnish any of the heating costs.

$23,000 additional for the expense of moving into the units of the new Extensible (South) Building. The actual cost of occupying the first two units of this structure was $11,878. The area to be occupied during the fiscal year 1934 represents approximately double this space, and a slightly greater unit cost is anticipated due to the fact that the activities to be transferred are located at a considerable distance from the Department with the consequent added cost due to the greater time to be consumed in the actual transfer.

$12,000 additional for electricity required for light and power in the new units of the Extensible (South) Building. One of the large structures to be abandoned is now leased under a provision for the furnishing of light and power by the owners, and units of the Department will also be transferred from structures where similar service is furnished from other than Department appropriations. It is estimated that the light and power will cost $500 per wing per month of occupancy, or a total of $18,000 for the new wings to be occupied during the fiscal year 1934. From this is deducted $6,000, representing the cost of light and power in the buildings to be abandoned, or a net increased expenditure of $12,000.

$6,500 increase is required to provide for the changing of electric current characteristics of the laboratory and office equipment used by the various branches of the Department which are to be moved to the new Extensible (South) Building. These organizations are now located in quarters provided with direct current electricity and the change to alternating current will require the replacement of all motors except a limited number of the small-capacity universal type. In most instances this can be accomplished by the purchase of new motors with the old motors exchanged as part-payment. This estimate is based on the actual cost of the change-over for the organizations already transferred to the South Building with an appropriate reduction because of the smaller quantity of large-capacity motor-driven laboratory and technical apparatus.

An increase of $18,000 is required to provide window shades or blinds for the four wings of the South Building scheduled for completion during the fiscal year 1934. Based on purchases recently made, it is estimated that the blinds may be procured at a cost of $6,000 per wing, or a total of $24,000. As $6,000 is provided for similar blinds for the fiscal year 1933, the net additional amount ($18,000) is necessary in order to make this building ready for occupancy.

An increase of $1,400 is required to provide for the procurement of two electrically-operated scrubbing machines. It is estimated that the units of the building scheduled for completion will comprise approximately 170,000 square feet of corridor and lobby space. To provide for the cleaning of this area in the most efficient and economical manner possible it will be necessary to utilize power-driven equipment. The use of these cleaning machines will make unnecessary a request for additional funds for the employment of extra personnel and will effect a substantial savings in maintenance costs.

CHANGE IN LANGUAGE

Provision is made in the Budget for amending the language relating to the maintenance and operation of the central store room, as follows:

"* * * Provided, That [in connection with activities authorized in the Act of August 10, 1912 (U.S.C., title 5, sec. 542),] the Secretary of Agriculture, during the fiscal year [1933] 1934, may maintain stocks of stationery, supplies, equipment, and miscellaneous materials sufficient to meet, in whole or in part, requirements of the bureaus and offices of the department in the city of Washington and elsewhere, but not to exceed in the aggregate $200,000 in value at the close of the fiscal year, and the appropriations made for such bureaus and offices for such stocks and for toilet-room supplies and materials and equipment used to clean, in whole or in part, the buildings occupied by the department in the city of Washington, shall be available to reimburse the appropriation for miscellaneous expenses current at the time [additional supplies and materials are procured for the general stock] supplies are issued: Provided further, That the appropriations made hereunder shall be available for the payment of salaries of [additional] employees engaged in purchasing, storing, handling, packing, or shipping of supplies and blank forms and the amount of such salaries shall be charged [proportionally] proportionately as a part of the cost of supplies issued and in the case of blank forms and supplies not purchased from this appropriation the amount of such salaries shall be charged proportionately to the proper appropriation: Provided further, That the facilities of the central storehouse of the department shall, to the fullest extent practicable, be used to make unnecessary the maintenance of separate bureau storehouse activities in [the several bureaus of] the department: Provided further, That a separate schedule of expenditures, transfers of funds, or other transactions hereunder shall be included in the annual Budget."

The Comptroller General, in a letter to the Department dated April 23, 1931, indicated that additional legislation would be necessary if the Department desired to continue the operation of a central store room which had been in operation for a number of years under language originally contained in the Agricultural Appropriation Act of August 10, 1912. In accordance with this ruling, recommendation was incorporated in the 1933 Budget and the new language was included in the 1933 Act. This language did not entirely meet the views of the General Accounting Office and following representations to the Budget Bureau by the Comptroller General an amended provision has been included in the 1934 Budget which covers the points to which the General Accounting Office has objected. The amendments contemplate the placing of the central supply organization on a completely self-supporting basis with reimbursement from the several appropriations of the Department to cover, as a part of the cost of the materials furnished from the central storeroom, the expenses involved in the procurement, storage, issue and shipment of such materials. The authorization recommended provides for the retail distribution by the central supply section of supplies to the ultimate consumers in the Department to the fullest extent practicable.

WORK UNDER THIS APPROPRIATION

This appropriation, as indicated by its terms, provides for a great variety of miscellaneous objects necessary in the conduct of the work of the Department. It provides for fuel, stationery, furniture and office equipment and supplies, lumber, hardware, glass, paint, laundry, toilet and cleaning materials, electricity, telegraphing and telephoning, ice, postage, travel expenses, repairs and improvements to buildings and heating apparatus, maintenance and operation of motor vehicles, freight, express and drayage charges, and miscellaneous supplies and expenses not otherwise provided for and necessary for the practical and efficient work of the Department. It provides also for the compensation of such personnel of the Central Supply Section as may be engaged in the procurement, storage, issue and shipment of supplies and materials for the several bureaus of the Department, reimbursement being made to this appropriation from the appropriations of the bureaus for which such service is rendered.

(d) RENT OF BUILDINGS IN THE DISTRICT OF COLUMBIA

Appropriation, 1932	$129,100
Appropriation, 1933	70,000
Budget Estimate, 1934	45,000
Decrease	25,000

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Rent of buildings in the District of Columbia	$129,095*	$70,000	$45,000	$25,000 (1)

*Includes $5,000 expended in 1931 under immediately available authorization.

The reduction of $25,000 is explained as follows:

(1) The reduction of $25,000 is made in contemplation of the abandonment of rented structures now occupied. Unless unforeseen delays occur in the completion of the additional units of the Extensible (South) Building, it is anticipated that it will be possible to relinquish rented quarters at such times and in such amounts as to make possible this saving. If this authorization is approved, leases negotiated for the rental of space during the fiscal year 1934 will provide for the continued occupancy of the structures on a monthly basis in order to permit the earliest possible termination of such payments. These plans are contingent upon the completion of the units of the Extensible (South) Building in accordance with the schedule developed by the Treasury Department. In the event that the construction schedule is not maintained as contemplated, it will be necessary for this Department to continue to occupy all or part of these structures for a period in excess of the present estimate and should such a situation develop the estimates contemplate that the Department will be able to invoke the

authorization which has been carried in the Bill for several years, as follows: "In addition to which the Secretary of Agriculture, if found necessary, may enter into leases not to exceed $35,000."

WORK UNDER THIS APPROPRIATION

This appropriation provides funds for the rental of office, laboratory, and storage space for the several bureaus, offices, and units of the Department in the District of Columbia for which no quarters are available in Government-owned structures. The following statement indicates the buildings leased by the Department during the fiscal years 1932 and 1933 and the estimated rentals for the fiscal year 1934:

Building	Bureau Occupying Space	F.Y. 1932 Annual Rentals	F.Y. 1933 Estimated Rentals	F.Y. 1934 Estimated Rentals
Atlantic Building ..	Forest Service	$35,000	$35,000	$22,548(a)
Earle Building	Home Economics	33,262(b)	--(c)-	--(c)-
216 13th. S.W.	Chemistry & Soils Food & Drug Adm.	10,000	--(d)-	--(d)-
McKinley Building ..	Fixed Nitrogen Research Laboratory	16,000	16,000	10,308(a)
Willard Building ...	Public Roads	15,000	15,000	9,664(a)
Earle Building	Agricultural Economics	4,865	--(c)-	--(c)-
220 13th St. S.W. ..	Food & Drug Adm.	2,667	--(d)-	--(d)-
Water & H. Sts.S.W.	Agricultural Economics	1,680	--(c)-	--(c)-
215 12th St. S.W. ..	Chemistry & Soils Food & Drug Adm., Biological Survey	720	--(d)-	--(d)-
2513 M Sts. N.W.	Weather Bureau	1,001	1,001	1,001
1004 Eye St. N.W.	Forest Service (film storage).	1,000	1,000	644(a)
212-214 13th St.S.W.	Food & Drug Adm.	480	--(d)-	--(d)-
210 11th St. S.W.	Entomology	900	--(c)-	--(c)-
918 F St. N.W.	Forest Service	830	696	448(a)
920 F St. N.W.	Forest Service	600	600	387(a)
217 12th St. S.W.	Chemistry & Soils Food & Drug Adm.	90	--(d)-	--(d)-
Amount available for emergency rentals and reconditioning of rented quarters upon relinquishment		5	703	------
Total		124,100 (e)	70,000	45,000

(a) Rental for portion of year; offices to be moved to new units of South Building.
(b) Includes $1,762 for reconditioning premises upon relinquishment.
(c) Relinquished.
(d) Acquired by Government during fiscal year 1932.
(e) Exclusive of $5,000 expended in 1931 under immediately available authorization.

OFFICE OF INFORMATION

(a) SALARIES AND GENERAL EXPENSES

Appropriation, 1932	$420,961
Appropriation, 1933	410,800
Budget Estimate, 1934	376,287
Decrease	34,513

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase or Decrease	
Office of Director	$ 21,878	$ 21,826	$ 21,858	+ $ 32	(1)
Personnel and Business Adm.	14,730	8,900	9,002	+ 102	(1)
Mail and Files	18,152	18,020	18,047	+ 27	(1)
Publications:					
Management	19,874	19,800	19,829	+ 29	(1)
Editorial	22,026	22,000	22,033	+ 33	(1)
Indexing	10,584	10,500	10,516	+ 16	(1)
Illustrations	24,322	24,300	24,336	+ 36	(1)
Photographic	32,904	32,500	32,548	+ 48	(1)
Printing	11,867	11,800	11,817	+ 17	(1)
Mailing Lists	12,528	12,500	12,518	+ 18	(1)
Distribution	61,430	61,400	58,500	- 2,900	(2)
Addressing, Duplicating and Mailing	96,720	95,500	95,641	+ 141	(1)
Press Service	42,587	42,500	42,563	+ 63	(1)
Radio Service	27,605	29,254	29,295	+ 41	(1)
Legislative furlough reduction			-32,216	- 32,216	(3)
Total	417,207	410,800	376,287	- 34,513	

The reduction of $2,297 is explained as follows:

(1) Apparent increases, totaling $603, are due to a transfer from "Salaries, Office of the Secretary," which appropriation has been correspondingly reduced, as pro-rata of supply handling charges for 1934.

(2) $2,900 decrease due to retirement of one employee and the discontinuance of this CAF-7 position at $2,900 a year.

(3) $32,216 reduction on account of continuation of legislative furlough.

CHANGE IN LANGUAGE.

The phrase "in accordance with the Classification Act of 1923 as amended." is deleted as this is covered by the opening paragraph of the Agricultural Appropriation bill.

WORK UNDER THIS APPROPRIATION.

The work under this appropriation consists of correlating and disseminating new agricultural knowledge and data developed by the research, service, and regulatory programs of the Department. This educational program is carried forward through numerous radio stations, in cooperation with the press, and by issuing technical and popular publications. The Office of Information handles all problems affecting the informational activities of the Department, including the editorial, illustrating, printing, and distribution phases, and supervises the informational activities of the 19 bureaus and offices of the Department. The Office cooperates with 300 radio stations daily, which donate to the Department 35,000 hours of time annually. The Office prepares annually 3,000 separate manuscript radio programs, approximately 1,200 press releases, and edits about 1,800 technical and popular manuscripts. The Office also cooperates with all agricultural colleges and experiment stations in maintaining an effective national policy for agricultural information.

(b) PRINTING AND BINDING

Appropriation, 1932	$1,000,000
Appropriation, 1933	925,000
Budget Estimate, 1934	900,000
Decrease	25,000

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Administrative Job Work and Binding:				
Binding	$ 35,662	$ 31,000	$ 29,000	$2,000
Emergency Field Printing ...	3,516	3,500	3,500	
Job Work	227,669	229,000	229,000	
Letterheads	7,229	8,700	8,700	
Administrative Reports, Periodicals and Publications:				
Agricultural Situation	3,458	3,400	3,400	
Annual Reports	14,842	13,600	11,600	2,000
Climatological Data	16,072	15,100	14,100	1,000
Congressional Documents	3,712	2,500	2,500	

Projects	Expended 1932	Estimated 1933*	Estimated 1934	Decrease
Administrative Reports, Periodicals and Publications, cont'd:				
Crops and Markets.....	$ 58,375	$ 52,000	$ 52,000	
Experiment Station Record...	19,000	19,000	19,000	
Extension Service Review....	5,912	5,900	5,900	
Farmers' Bulletin Lists.....	8,751	6,800	6,800	
Forest Folders.....	28,187	20,500	15,000	$ 5,500
Forest Worker.....	1,620	1,700	1,700	
Indexes.....	43,798	19,000	14,000	5,000
Inventory of Seeds and Plants Imported.....	2,159	2,150	2,150	
Journal of Agricultural Research	5,912	5,800	5,800	
Monthly List of Publications.	1,596	1,400	1,400	
Monthly Weather Review.....	9,228	9,500	9,500	
Monthly Weather Review Separates	992	800	800	
Official Record.....	10,151	10,750	10,750	
Service and Regulatory Announcements.....	16,894	17,000	17,000	
Unnumbered Publications.....	25,770	22,000	22,000	
Yearbook of Agriculture.....	22,464	23,000	23,000	
Research and Technical Publications:				
Circulars.....	22,080	22,000	22,000	
Experiment Station Bulletins and Reports.....	5,023	3,000	3,000	
Journal of Agricultural Research Separates.....	21,914	19,000	18,000	1,000
North American Fauna.....	3,906	-	-	
Reprints and Revisions of Former Series.....	5,786	4,400	2,400	2,000
Soil Surveys.....	50,151	63,000	63,000	
Statistical Bulletins.....	8,613	8,600	8,600	
Technical Bulletin.....	51,533	51,000	51,000	
Popular Publications:				
Clip Sheet.....	3,628	3,600	3,600	
Farmers' Bulletins - New....	20,625	20,000	20,000	
Farmers' Bulletins - Reprints and Revisions.....	153,821	153,500	153,500	
Leaflets - New	2,337	2,300	2,300	
Leaflets - Reprints and Revisions.....	5,707	5,700	5,700	
Miscellaneous Publications..	55,287	41,500	35,000	6,500
Posters.....	1,850	1,800	1,800	
Yearbook Separates.....	1,770	1,500	1,500	
Total.....	987,000	925,000*	900,000	25,000 (1)

* Project statement on the basis of the appropriation carried in the Agricultural Appropriation Act for 1933. A revised project statement on the basis of the allotment under Section 302 of the Economy Act will be furnished the Appropriations Committee at the time of the hearings.

(1) The decrease of $25,000 in the estimate for 1934 (as compared to the appropriation for 1933) leaves a total of $900,000 which is the minimum amount required by the Department in 1934 for necessary administrative printing and binding and for the effective dissemination of facts developed by the research

WORK UNDER THIS APPROPRIATION

The work under this appropriation consists of publishing the results of the research, service, and regulatory work of the Department. Necessary administrative forms, letterheads, certificates, etc., are printed. The various types of published material may be grouped roughly into four classifications: Administrative Job Work and Binding; Administrative Reports, Periodicals, and Publications; Research and Technical Publications; Popular Publications. The first two groups are used primarily to aid the proper administration within the Department itself. Publications falling within the last two classifications are used to spread scientific and practical knowledge to scientists, economists, and farmers.

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LIBRARY

Appropriation, 1932	$110,620
Appropriation, 1933	106,100
Budget Estimate, 1934	100,223
Decrease	5,877

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Personnel	$72,633	$70,820	$70,820	- - -
Books, periodicals, and other serials	30,495	24,330	27,980	+$3,650 (1)
General expenses, including equipment and maintenance charges	6,988	10,950	7,245	- 3,705 (2)
Deduction from project on account of legislative furlough	- - -	- - -	- 5,822	- 5,822 (3)
Total	110,116	106,100	100,223	- 5,877

The reduction of $5,877 is explained as follows:

(1) During 1933 it has been necessary to curtail seriously the allotment for acquisition of books and other library material in order to provide funds for furniture and similar equipment essential to the installation of the Library in the New South Building of the Department. It will be possible to restore part of this allotment, which is urgently needed, during 1934 by making a corresponding decrease of $3,605, as here proposed, in the allotment for general expenses.

(2) The decrease of $3,705 as shown under this project includes:

(a) A reduction of $3,650 in order to provide for acquisition of essential books and other library material as explained above.

(b) A reduction of $100 to be met by further economies in operation.

(c) An apparent increase of $45 by transfer from "Salaries, Office of the Secretary," which has been correspondingly reduced, as pro rata of supply handling charges for 1934.

(3) $5,822 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The Department Library is one of the basic units in the scientific research extension and regulatory work of the Department and the State agricultural agencies, and its maintenance on an adequate basis is therefore essential to the economical and effective prosecution of the work of the Department as a whole. With its branch libraries in the various bureaus it contains approximately 225,000 volumes on agriculture and the related sciences, technology and economics, and is the largest special collection of this kind in the country. It makes this literature readily available through its catalogues and special indexes, numbering more than a million cards, and through special bibliographies. It supplies books and periodicals to Department workers as needed in their work, especially in research, and assists them in gathering references on scientific and economic subjects and problems which are being investigated or are to be investigated. It supplies reference material and bibliographical information needed in answering the various inquiries addressed to the Department and assists the state agricultural colleges and experiment stations and other scientific institutions through the loan of its books. In general, it acts as the national agricultural library and as the clearing house of bibliographical information relating to the literature of agriculture in all its phases.

OFFICE OF EXPERIMENT STATIONS

(a) PAYMENTS TO STATES, HAWAII, ALASKA, AND PUERTO RICO FOR AGRICULTURAL EXPERIMENT STATIONS

Appropriation, 1932.....$4,357,000

Appropriation, 1933.....	4,374,000
Budget Estimate, 1934.....	4,381,000
Increase.....	7,000

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase
Hatch Act.....	$ 720,000	$ 720,000	$ 720,000	-----
Adams Act.....	720,000	720,000	720,000	-----
Purnell Act.....	2,880,000	2,880,000	2,880,000	-----
Hawaii Station Act.....	22,000	24,000	26,000	$ 2,000 (1)
Alaska Station Act.....	15,000	15,000	15,000	-----
Puerto Rico Station Act...	------	15,000	20,000	5,000 (2)
Total.....	4,357,000	4,374,000	4,381,000	7,000

The increase of $7,000 is explained as follows:

(1) $2,000 increase under Hawaii Station Act is to meet the authorization $26,000 for 1934 provided for in the Act approved May 16, 1928.

(2) $5,000 increase under Puerto Rico Station Act is to meet the authorization of $20,000 for 1934 provided for in the Act approved March 4, 1931. Section 1 of the Act contemplated certain action by the Legislature of Puerto Rico and by the insular Government. This action was not completed before July 1, 1932, and the Secretary of Agriculture therefore withheld his certification of the appropriation for 1933. This action of the Secretary of Agriculture is subject to appeal by the Government of Puerto Rico to the Congress at its session in December, and, in any event, it is expected the necessary action will be taken by the Legislature and Government of Puerto Rico so that the Secretary of Agriculture can certify the funds for 1934.

WORK UNDER THIS APPROPRIATION

The Hatch Act approved March 2, 1887, appropriates $15,000 per annum to each State for agricultural experiment stations to "aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

The Adams Act approved March 16, 1906, appropriates $15,000 per annum to each State for the more complete endowment and maintenance of the State agricultural experiment stations "to be applied only to paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry of the United States."

The Purnell Act approved February 24, 1925, authorized an appropriation for each State of $20,000 for the fiscal year 1926, an increase of $10,000 over the preceding year for each fiscal year 1927 to 1929, inclusive, and $60,000 per annum thereafter for the more complete endowment of agricultural experiment stations and for other purposes to be "applied only to paying the necessary expenses of conducting investigations or making experiments bearing directly on the production, manufacture, preparation, use, distribution, and marketing of agricultural products and including such scientific researches as have for their purpose the establishment and maintenance of a permanent and efficient agricultural industry, and such economic and sociological investigations as have for their purpose the development and improvement of the rural home and rural life, and for printing and disseminating the results of said researches."

The Hawaii Station Act approved May 16, 1928, provides that beginning with the fiscal year 1930 the Territory of Hawaii shall be entitled to share in the acts noted above and authorizes appropriations for this purpose as follows: 1930, $15,000; 1931, $20,000; 1932 to 1936, inclusive, $2,000 increase each year over the preceding year; 1937, $50,000; 1938 to 1941, inclusive, $10,000 increase each year over the preceding year; and thereafter $90,000 per year.

The Alaska Station Act approved February 23, 1929, provides that the Act on March 2, 1887, as amended and supplemented, and known as the Hatch Act, and the Act approved May 8, 1914, and known as the Smith-Lever Act, be and the same are hereby extended to the Territory of Alaska:"Provided, That no appropriations shall be made under this Act until annually estimated as to funds and amounts by the Secretary of Agriculture; the estimates to be based upon his determination of the ability of the Territory of Alaska to make effective use of the funds."

The Puerto Rico Station Act approved March 4, 1931, provides as follows: "That beginning with the fiscal year ending June 30, 1933, the Territory of Porto Rico shall be entitled to share in the benefits of the Act entitled 'An Act to establish agricultural experiment stations in connection with the colleges established in the several States under the provisions of an Act approved July 2, 1862, and of the Acts supplementary thereto,' approved March 2, 1887, as amended and supplemented, and of the Act entitled 'An Act to provide for cooperative agricultural extension work between the agricultural colleges in the several States receiving the benefits of an Act of Congress approved July 2, 1862, and of Acts supplementary thereto, and the United States Department of Agriculture, approved May 8, 1914, and of Acts supplementary thereto: Provided, That the experiment station so established shall be connected with the College of Agriculture of the University of Porto Rico and it shall be conducted jointly and in collaboration with the existing Federal experiment station in Porto Rico in enlarging and expanding the work of the said Federal station on cooperative plans approved by the Secretary of Agriculture; and the Secretary of Agriculture shall coordinate the work of the Territorial stations with that of the Federal station and of the United States Department of Agriculture in

the island: Provided further, That the several experiment stations now conducted by the insular government shall be transferred to and coordinated with the experiment station of the College of Agriculture of the University of Porto Rico, together with whatever funds that are available for the support of the same, and the Secretary of Agriculture may at his discretion transfer such land, buildings, and equipment as he may deem necessary to the experiment station of the College of Agriculture of the University of Porto Rico: Provided further, That the Territory of Porto Rico shall make provision for such additional buildings and permanent equipment as may be necessary for the development of the work.

"SEC. 2. To carry into effect the above provisions for extending to Porto Rico the benefits of the Act of March 2, 1887, and supplementary Acts in the order and amounts designated by these Acts, the following sums are hereby authorized to be appropriated in addition to the amounts appropriated to the Department of Agriculture for use in Porto Rico: $15,000 for the fiscal year ending June 30, 1933; $20,000 for the fiscal year ending June 30, 1934; $25,000 for the fiscal year ending June 30, 1935; $30,000 for the fiscal year ending June 30, 1936; $35,000 for the fiscal year ending June 30, 1937; $40,000 for the fiscal year ending June 30, 1938; $45,000 for the fiscal year ending June 30, 1939; $50,000 for the fiscal year ending June 30, 1940; $60,000 for the fiscal year ending June 30, 1941; $70,000 for the fiscal year ending June 30, 1942; $80,000 for the fiscal year ending June 30, 1943; and $90,000 for the fiscal year ending June 30, 1944, and thereafter a sum equal to that provided for each State and Territory for agricultural experiment stations established under the Act of March 2, 1887.

"SEC. 3. The permanent annual appropriation provided for in section 3 of said Act of May 8, 1914, and of Acts supplementary thereto are hereby authorized to be increased by an amount necessary to carry out the provisions of this Act, but without diminishing or increasing the amount to which any State or the Territory of Hawaii is entitled under the provisions of said Act of May 8, 1914, and of Acts supplementary thereto: Provided, That for the fiscal year 1933 the total amount available to the Territory of Porto Rico under the terms of the Act of May 8, 1914, shall be $50,000, this amount to be increased by $10,000 annually, or such part thereof as may be necessary, until the total to which Porto Rico is entitled under the provisions of this Act is reached. Participation in other Federal appropriations for cooperative extension work, including those authorized by the Act of May 22, 1928, shall be at such time and in such amounts as shall be estimated by the Secretary of Agriculture and appropriated by the Congress."

(b) SUPERVISION OF AND RELATIONS WITH AGRICULTURAL EXPERIMENT STATIONS

Appropriation, 1932..... $169,380

Appropriation, 1933.....	160,734
Budget Estimate, 1934.....	148,831
Decrease.....	11,903

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Supervision of and relations with agricultural experiment stations ...	$155,254	$160,734	$148,831	$11,903 (1)

(1) The reduction of $11,903 is explained as follows:

(a) Reduction of $12,106 on account of continuation of legislative furlough.

(b) Apparent increase of $203 by transfer from "Salaries, Office of the Secretary" which has been correspondingly reduced, as pro rata of supply handling charges for 1934.

CHANGE IN LANGUAGE

The following change in the language is recommended in order to make reference to the Puerto Station Act:

Change "and February 23, 1929 (U. S. C., Supp. V, title 7, sec. 386c)" to read "February 23, 1929 (U. S. C., Supp. V, title 7, sec. 386c), and March 4, 1931 (U. S. C., Supp. V, title 7, secs, 386d-386f),"

WORK UNDER THIS APPROPRIATION

The Office of Experiment Stations represents the Department in the administration of the Acts of Congress (Hatch Act of 1887, Adams Act of 1906, Purnell Act of 1925 and Acts amendatory or supplementary thereto, Hawaii Station Act of 1928, Alaska Station Act of 1929, and Puerto Rico Station Act of 1931) making appropriations for the support of agricultural experiment stations in the States and Territories and administers the Federal agricultural experiment stations in Hawaii and Puerto Rico. This involves funds for 1933 amounting to $4,374,000 to the States and Territories and $103,560 for the Federal stations in Hawaii and Puerto Rico.

Administration of the acts granting funds to States and Territories involves supervision of the funds, close advisory relations with the stations as to research for which the funds are expended, annual examination of the work and expenditures of each station, preparation and issuance of the Experiment Station Record and other records, and preparation of report to Congress on the work and expenditures of the stations as called for in the acts.

The Federal funds are largely expended on research which is outlined and submitted to the Office of Experiment Stations for advisory suggestions and approval in advance of expenditures. Annual budgets of proposed expenditures on the Federal funds are submitted by each station for review and approval of proposed work and expenditures at the beginning of the fiscal year. Changes and adjustments in work to best meet the State needs are submitted throughout the year. About 1,800 research projects were thus submitted for review and approval during the fiscal year 1932.

To carry out the provisions of the Federal Acts a representative, or representatives, of the Office visits each of the 50 State stations annually and spends three to ten days reviewing the expenditures and the research under way.

In connection with the view of proposed projects and the personal annual examination at each station, as well as through membership on national committees representing the stations, close advisory relations are maintained on correlation and cooperation in research to avoid unnecessary duplication among States and between the States and the Department of Agriculture, and advisory relations on matters of organization and policy. During the fiscal year 1932 there were 1,100 cooperative investigations between State stations or State stations and the Department of Agriculture which were carefully planned by the cooperating agencies and made matters of written cooperative agreement.

The Experiment Station Record was established in 1889 as a part of the Federal-State joint participation in establishing and maintaining agricultural experiment stations. Its purpose is to make available to staff members of all stations and the Department abstracts of current published results of research in this and other countries promptly as an aid in planning research, avoiding duplication, and in coordinating research effort. A total of 5,500 to 7,500 such abstracts are prepared, edited, and published annually, involving translations from twelve or more languages. The abstract volumes are supplemented by indexes and a combined index for each ten volumes to aid in using the increasing volumes of research findings. Few, if any, of the stations have all the publications available, and the abstracting by the Office of Experiment Stations avoids the necessity of duplicate abstracting by the several thousand research workers. As a part of this function, the Office represents the Department's cooperation with Biological Abstracts to the extent of furnishing copies of abstracts of publications by the State stations and the Department and some technical personnel and supplies.

In the interest of all the stations, the Office, as a central agency, is called upon to compile and make available lists of all current research projects, lists of research workers in different lines, and combined statements of research and its progress in special fields, and to act as a general clearing house for inquiries concerning the agricultural experiment stations.

Based upon the foregoing activities throughout the year, a report on the work and expenditures of the agricultural experiment stations is prepared for Congress as provided for in the Federal Acts.

Administration of the Federal stations in Puerto Rico and Hawaii involves approval of budgets, expenditures, and research projects, review, editing, and approval of publications, advisory assistance relating to coordination of the research with that of the Territorial agencies and the Department, and general supervision of personnel and administration. Owing to the cost of travel and limited funds personal inspection and direction by the Office is rarely possible.

(c) INSULAR AGRICULTURAL EXPERIMENT STATIONS

Appropriation, 1932.....$230,030

Appropriation, 1933.....	133,560
Budget Estimate, 1934.....	78,130
Decrease.....	55,430

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Alaska Stations.....	$ 57,770	------	------	------
Hawaii Station.....	42,871	$40,000	$38,000	$ 2,000 (1)
Puerto Rico Station.....	56,432	63,560	43,560	20,000 (2)
Guam Station.....	29,003	------	------	------
Virgin Islands Station.....	29,553	------	------	------
Closing Alaska, Guam, and Virgin Islands Stations...	------	30,000	------	30,000 (3)
Legislative furlough deduction	- - -	- - -	- 3,430	3,430 (4)
Total.....	215,629	133,560	78,130	55,430

The decrease of $52,000 is explained as follows:

(1) $2,000 decrease to offset the increase for 1934 under the Hawaii Station Act.

(2) $20,000 decrease to offset the total appropriation for 1934 under the Puerto Rico Station Act.

(3) $30,000 decrease, as it is expected that the transfer or closing of the Alaska, Guam, and Virgin Islands stations will be completed during 1933.

(4) $3,430 reduction on account of continuation of legislative furlough.

CHANGE IN LANGUAGE

The omission of the following language is recommended, it being no longer needed:

"and $30,000, to be immediately available, for salaries, wages, and other expenses connected with the care of property, including all appurtenances thereto, and all equipment and livestock of the experiment stations in Alaska, Guam, and the Virgin Islands until they are transferred or sold: Provided, That the Secretary of Agriculture is authorized to transfer to any Government department or establishment or to local authorities or institutions such property and/or equipment or to sell the same at public or private sale and to pay from this appropriation the salaries of the present employees of said stations appointed from the continental United States, including salaries during such leave as may be granted under the Acts approved June 30, 1914, and July 24, 1919 (U. S. C., title 5, secs. 535 and 536), together with traveling expenses of themselves and families, including the transportation of such quantity and character of their personal effects as may be authorized by the Secretary of Agriculture, in returning to the usual port of debarkation in the United States,"

WORK UNDER THIS APPROPRIATION

The agricultural experiment stations in Hawaii and Puerto Rico were established to determine the agricultural possibilities of the two Territories, to improve and diversify their agriculture, and to develop types of agriculture adapted to different regions.

Hawaii Station: The Hawaii Experiment Station at Honolulu, which is now maintained in cooperation with the University of Hawaii, is concerned with problems relating to the diversification of agriculture and the establishment of industries other than sugar and pineapple production. These major industries have their own experiment stations. Close cooperation is maintained with them on problems of mutual interest. Soil and crop work, horticultural investigations, crop utilization, chemical studies of soils, plant breeding, forage crop studies, dairying, and livestock management constitute the principal activities of the station. These studies are designed to aid the so-called small farmer as contrasted with the plantation system. In the station work, substations have been established on other islands and at greater elevations than the main station for developing systems of agriculture adapted to large areas that are not now profitably utilized. The possibility of extending pineapple cultivation at about 1,000 feet elevation higher than formerly thought possible has been definitely proven. Through the cooperation of territorial officials and private individuals, experiments have been begun at various elevations up to 5,500 feet. If these prove successful, large areas in the islands can be brought under cultivation. This is very important, as much of the land suited to present agricultural use is under the control of large corporations. Experiments have been begun for the assistance of the coffee industry and a beginning has been made, in cooperation with the Office of Foreign Plant Introduction, U. S. Department of Agriculture, to bring together plantings of all available economic tropical plants to study their requirements and adaptability to Hawaii and to limited regions in the United States.

Puerto Rico Station: The agricultural experiment station maintained by this Department at Mayaguez, Puerto Rico, is aiding in the improvement and diversification of the agriculture of the island. Its principal lines of work are connected with livestock improvement, crop improvement, introduction of new tropical crops, coffee, citrus fruit and pineapple studies, plant diseases and insect pest control, soils and fertilizers, and animal parasites. The station's work on the control of some animal parasites has resulted in extending stock production. The introduction of new forage plants has yielded more feed for stock, and the wide adoption of cover plants for soil conservation and improvement is a direct result of station work. The plant breeding work with sugar cane and corn has yielded important results. Some of the new cane varieties produced by hybridizing are exceedingly promising, yielding more than the standard varieties. A number of these hybrids are under commercial test on several plantations this year. The coffee investigations include studies of varieties, methods of planting, pruning, and use of fertilizers, all of which are necessary to the permanence of agriculture in a large part of the island. Cooperative investigations with citrus fruits and pineapples are in progress, and marketing problems are being worked out to the advantage of the growers. Through its introduction of tropical horticultural crops, interest in them has been aroused. The station is actively engaged in various undertakings that are expected to aid in the Governor's campaign for improving local conditions.

Closing the Alaska, Guam, and Virgin Islands Stations: In the Appropriation Act for this Department for 1933 (Pub. 269, 72nd Congress, page 6), the sum of $30,000 was granted for the payment of "salaries, wages, and other expenses connected with the care of property, including all appurtenances thereto, and all equipment and livestock of the experiment stations in Alaska, Guam, and the Virgin Islands until they are transferred or sold. . . . and to pay from this appropriation the salaries of the present employees of said stations appointed from the continental United States, including salaries during such leave as may be granted under the Acts approved June 30, 1914, and July 24, 1919 (U. S. C., title 5, secs. 535 and 536), together with traveling expenses of themselves and families, including the transportation of such quantity and character of their personal effects as may be authorized by the Secretary of Agriculture, in returning to the usual port of debarkation in the United States."

Although the Appropriation Act was not approved until July 7, work at the stations was greatly reduced late in the fiscal year 1932, and the ordinary activities ceased on June 30, 1932, and arrangements were made for the disposal of the property as soon as definite authority was granted.

The Virgin Islands station was transferred to the Department of the Interior on July 8, provision for its maintenance having been made in the Appropriation Act of that Department for 1933. The Guam station was placed in the temporary custody of the Governor of Guam on July 6 and by him it was transferred to the Island Government for use as an agricultural school on July 27, 1932. The Matanuska station was transferred to the Alaska College of Agriculture and School of Mines on July 23, 1932. The property of the Sitka and Juneau stations was placed in the custody of Charles H. Flory, Ex-officio Commissioner for the Department of Agriculture for Alaska, as the representative of the Secretary of Agriculture, on June 30, 1932.

The expenditures made in connection with the closing of the stations and the returns of the personnel up to October 25, 1932, were as follows:

Salaries	$3,852.13
Wages	365.25
Travel	1,481.51
Miscellaneous	113.12
Total	5,812.01

There are believed to be outstanding bills for freight and other expenses aggregating about $300.

There still remains to be paid the claims for accumulated leave to which the personnel are entitled under the Acts providing for such leave and the express provisions of the Appropriation Act of July 7, 1932. The estimated amount of these claims is about $15,000. There is some question as to whether these employees can receive payment for their accumulated leave during the fiscal year 1933. This matter is now pending before the Comptroller General in the form of claims of certain of the former employees.

Limitation on Purchase of Passenger Carrying Vehicles

The language authorizing and limiting the expenditure for purchase of passenger carrying vehicles is submitted in connection with the total for the bureau in order to provide for consideration of this item at the same time the general estimates of the bureau are under consideration. The purchase authorization of the bureau from the general Departmental authorization for 1933 is $1500. The authorization for 1934, $750, therefore constitutes a reduction of $750.

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EXTENSION SERVICE

Payments to States, Hawaii, Alaska, and Puerto Rico for Agricultural Extension Work

General Statement

Funds available for direct payments to the States, Hawaii, Alaska and Puerto Rico for cooperative agricultural extension work for 1933 total $8,728,096. For 1934 an increase of $10,000 has been indicated in the permanent annual appropriation (Smith-Lever Act) to meet the requirements of the Act of March 4, 1931 (Public No. 846 - 71st Congress) entitled "An Act to coordinate the agricultural experiment station work and to extend the benefits of certain Acts of Congress to the Territory of Puerto Rico." The total of funds requested for payments direct to the States, Hawaii, Alaska, and Puerto Rico for 1934 consequently is $8,738,096.

In addition to the sums indicated above for 1933, there was available to the States, Hawaii, and Puerto Rico from appropriations direct to the Department of Agriculture (Farmers' Cooperative Demonstrations and Clarke-McNary forestry funds) a total of $971,485, making the total funds available to the States and Territories for 1933 $9,699,581. For 1934 it is proposed that these Department contributions be continued with no increase.

The payments to the States, Hawaii, Alaska, and Puerto Rico proposed for 1934, therefore, will total $9,709,581, or a net increase of $10,000 for Puerto Rico which occurs under the permanent annual appropriation (Smith-Lever Act). The sources of this money is indicated somewhat more clearly by the following Tables 1 and 2.

Table 1. Statement showing appropriation items and amounts available to the States in 1932, 1933, and proposed for 1934.

Item	Appropriation 1932	Appropriation 1933	Budget Estimate 1934
Payments to States, Hawaii, Alaska and Puerto Rico for agricultural extension work:			
Supplementary Smith-Lever	$1,580,000	$1,580,000	$1,580,000
Capper-Ketcham Act (Act of May 22,1928)	1,480,000	1,480,000	1,480,000
Alaska (Act of February 23, 1929).....	10,000	12,000	12,000
Additional Cooperative Extension Work ..	1,000,000	1,000,000	1,000,000
Total Agricultural Act	4,070,000	4,072,000	4,072,000
Permanent Annual Smith-Lever Appr. ...	4,606,096	4,656,096	4,666,096
Total payments made directly to States ..	8,676,096	8,728,096	8,738,096
Amounts allotted to States but disbursed by Department of Agriculture:			
Farmers' Cooperative Demonstrations:			
Cooperative Extension work	931,260	870,075	870,075
Reclamation demonstrations	39,100	39,100	39,100
Cooperative Farm Forestry (Clarke-McNary Act of June 7, 1924)	64,790	62,310	62,310
Total allotments to States by Department	1,035,150	971,485	971,485
Total of direct payments to States and Territories, and Department allotments to States and Territories	9,711,246	9,699,581	9,709,581

With the exception of $1,000,000 designated for "Additional Cooperative Extension Work," and of the funds allotted by this Department, the major part of the money is distributed on the basis of rural population, figured on the proportion that the rural population of each State bears to the total rural population of the States. The $1,000,000 appropriation for Additional Cooperative Extension Work is paid to each State and the Territory of Hawaii by the Secretary of Agriculture in accordance with the apparent need as determined by him. Funds directly disbursed by the Department are also allotted at the discretionof the Secretary. The following table indicates the funds paid over to States and Territories that must be offset by State money, those not so offset, and the basis of allotment:

Table 2. Statement indicating direct payments to States, Hawaii, Alaska, and Puerto Rico, proportion requiring offset by States and Territories, proportion not requiring offset and basis of distribution, as proposed for 1934.

	Total App'n 1934	Amount paid without offset	Amount requiring offset and basis of allotment: Amount	Basis of distribution
(1) Permanent Annual Appropriation (Smith-Lever Act)	$4,666,096	$500,000(a)	$4,166,096	Rural population
(2) Supplemental Smith-Lever	1,580,000	- -	1,580,000	Rural population
(3) Capper-Ketcham	1,480,000	980,000(b)	500,000	Rural population
(4) Alaska	12,000	10,000(c)	2,000	Rural population when recommended by Department
(5) Additional Cooperative Extension Work	1,000,000	- -	1,000,000	Determined by Secretary of Agriculture
Total funds available	8,738,096	1,490,000	7,248,096	- -

(a) $10,000 to each State, Hawaii, and Puerto Rico.
(b) $20,000 to each State and Hawaii.
(c) Based on an authorization act.

The federal funds expended for cooperative agricultural extension work are supplemented by funds from within the States totaling $13,751,851, thus making available from federal, state and local sources for extension work a sum approximating $23,405,000. (See Table 3).

Table 3. Total allotments to States and Territories from Federal (including U.S.D.A.) and State sources for extension work, fiscal year 1933

	Total	Total Federal Funds	Total within the States
Alabama	$ 661,898.42	$ 309,565.13	$ 352,333.29
Arizona	149,487.07	86,314.77	63,172.30
Arkansas	522,654.83	263,137.07	259,517.76
California	868,680.00	233,003.31	635,676.69
Colorado	255,062.17	127,562.17	127,500.00
Connecticut	296,059.29	102,186.15	193,873.14
Delaware	60,929.06	46,714.53	14,214.53
Florida	366,405.21	152,639.98	213,765.23
Georgia	734,889.13	354,683.59	380,205.54
Idaho	251,532.38	101,963.01	149,569.37
Illinois	974,098.92	302,349.46	671,749.46
Indiana	588,375.50	234,012.28	354,363.22
Iowa	909,056.56	242,035.51	667,021.05
Kansas	616,821.71	199,010.53	417,811.18
Kentucky	538,105.78	297,800.78	240,305.00
Louisiana	513,290.36	232,445.66	280,844.70
Maine	204,342.14	111,426.07	92,916.07
Maryland	388,619.64	139,282.53	249,337.11
Massachusetts	452,005.51	105,035.96	346,969.55
Michigan	639,239.09	239,859.09	399,380.00
Minnesota	523,071.91	219,884.98	303,186.93
Mississippi	564,390.60	286,049.60	278,341.00
Missouri	491,360.00	266,780.00	224,580.00
Montana	299,111.88	123,249.88	175,862.00
Nebraska	409,354.12	173,754.12	235,600.00
Nevada	123,650.00	60,189.95	63,460.05
New Hampshire	212,093.25	75,972.25	136,121.00
New Jersey	401,033.59	137,452.59	263,581.00
New Mexico	172,173.88	94,094.94	78,078.94
New York	1,586,347.52	302,512.86	1,283,834.66
North Carolina	666,977.22	363,313.61	303,663.61
North Dakota	275,344.02	139,082.88	136,261.14
Ohio	817,091.35	307,828.49	509,262.86
Oklahoma	595,496.09	264,790.57	330,705.52
Oregon	340,126.89	125,714.07	214,412.82
Pennsylvania	831,493.10	396,746.55	434,746.55
Rhode Island	63,101.55	41,564.65	21,536.90
South Carolina	465,062.09	246,390.10	218,671.99
South Dakota	309,073.63	136,341.03	172,732.60
Tennessee	541,719.09	296,364.09	245,355.00
Texas	1,232,205.34	537,832.77	694,372.57
Utah	173,363.67	89,753.67	83,610.00
Vermont	187,859.04	86,799.04	101,060.00
Virginia	590,340.79	283,395.29	306,945.50
Washington	251,437.34	144,448.34	106,989.00
West Virginia	405,269.11	199,314.11	205,955.00
Wisconsin	584,748.78	221,024.39	363,724.39
Wyoming	191,452.60	77,178.39	114,274.21
Alaska	17,420.84	12,000.00	5,420.84
Hawaii	87,329.35	60,329.35	27,000.00
Puerto Rico	3,960.00	1,980.00	1,980.00
Total	23,405,011.41	9,653,160.14	13,751,851.27

As the major purpose of these payments of money to States is the employment of extention workers in counties and at the colleges, the following comparative statement is submitted showing agents employed:

Table 4. Comparison of number of extension field agents employed June 30, 1931, June 30, 1932 and September 30, 1932.

	June 30, 1931	June 30, 1932	Sept.30, 1932
State supervisors	495	504	500
Subject-matter specialists:			
Full-time specialists	985	942	933
Part-time specialists	237	236	228
Total specialists	1,222	1,178	1,161
Total with headquarters at college	1,717	1,682	1,661
County workers:			
Agricultural agents	2,616	2,534	2,526
Home demonstration agents	1,287	1,221	1,226
Boys' and girls' club agents	250	220	217
Negro extension agents	291	302	303
Total county workers	4,444	4,277	4,272
Total	6,161	5,959	5,933

Number of counties in the United States 3,077
Approximate number of counties now having one or more agents .. 2,350

A discussion of the activities under the various appropriation items and tabulation of amounts involved under each, follows:

(a) COOPERATIVE AGRICULTURAL EXTENSION WORK
(Supplemental Smith-Lever Act)

Appropriation, 1932 ..... $1,580,000

Appropriation, 1933 1,580,000
Budget Estimate, 1934 1,580,000

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Supplemental Smith-Lever Funds	$1,580,000	$1,580,000	$1,580,000	- - -

WORK UNDER THIS APPROPRIATION

These funds supplement the permanent annual appropriation of $4,656,096 (1933) provided under the Smith-Lever Act (May 8, 1914), Stat.372 - 374 U. S. C. 114). Like the Smith-Lever funds, they are paid direct to the State colleges of agriculture as Federal aid for the promotion of extension work in agriculture and home economics. Programs of work and expenditures from Federal Smith-Lever funds are supervised by the Department of Agriculture. This appropriation is divided among the States and Hawaii in the proportion that the rural population of each bears to the total rural population of the States and Hawaii, and is available only when offset with funds

These funds supplement the permanent annual appropriation of $4,656,096 (1933),provided under the Smith-Lever Act (Act of May 8, 1914), as well as those funds provided under the Capper-Ketcham Act, (Act of May 22, 1928). Like the Smith-Lever and Capper-Ketcham Act.

from within the States. This item contains a provision that not more than $300,000 may be expended for purposes other than salaries of extension agents in counties. As $300,000 is approximately 19 per cent of the total appropriation, this means that approximately 81 per cent of the funds must be expended for salaries of county extension agents.

(b) COOPERATIVE AGRICULTURAL EXTENSION WORK
(Capper-Ketcham Act)

Appropriation, 1932	$1,480,000
Appropriation, 1933	1,480,000
Budget Estimate, 1934	1,480,000

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Capper-Ketcham Funds...	$1,480,000	$1,480,000	$1,480,000	- -

WORK UNDER THIS APPROPRIATION

This appropriation is specifically authorized by the provisions of the Act of May 22, 1928 (45 Stat. 711, 712) known as the Capper-Ketcham Act. This Act authorizes an appropriation of $980,000 to be divided at the rate of $20,000 to each State and to Hawaii, without requirement for State offset, and of an additional $500,000 to be divided among the States and Hawaii on the basis of rural population. It further provides that at least 80 per cent of the funds appropriated under this authorization shall be expended for salaries of county extension agents, and that the extension agents appointed under its provisions shall be men and women in fair and just proportions. The State allotments are paid directly to a designated officer in the State and are disbursed in accordance with budgets and plans of work submitted by the State directors of extension and approved by the Secretary of Agriculture. Expenditures by the States from this and other cooperative extension appropriations are subject to an annual inspection by representatives of the Department.

(c) EXTENSION OF SMITH-LEVER ACT TO ALASKA

Appropriation, 1932	$10,000
Appropriation, 1933	12,000
Budget Estimate, 1934	12,000

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Cooperative extension work, Alaska	$10,000	$12,000	$12,000	- -

WORK UNDER THIS APPROPRIATION

This appropriation is authorized by the Act approved February 23, 1929, entitled, "An Act to extend the benefits of the Hatch Act and the Smith-Lever Act to the Territory of Alaska," (U. S. C. Supp. III, title 7, sec. 386c). It provides funds for the employment of an agricultural agent, a home demonstration agent and an extension veterinarian in fur production in Alaska with necessary travel, clerical expenses and supplies. The extension work in agriculture and home economics is of a similar nature to that which is being conducted in the States, modifications being made to suit local conditions. Experiment stations have been maintained by the Federal government in Alaska for many years but extension work was not systematically begun among farmers until the year 1931.

(d) ADDITIONAL COOPERATIVE EXTENSION WORK

Appropriation, 1932	$1,000,000
Appropriation, 1933	1,000,000
Budget Estimate, 1934	1,000,000

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Additional cooperative extension work	$986,600	$1,000,000	$1,000,000	- -

WORK UNDER THIS APPROPRIATION

This project provides for additional cooperative agricultural extension work, including employment of specialists in economics and marketing, to be allotted by the Secretary of Agriculture to the several States and the Territory of Hawaii in such amounts as he may deem necessary to accomplish such purposes, and further provides that no expenditures shall be made hereunder until a sum or sums at least equal to such expenditures shall have been appropriated, subscribed, or contributed by State, county, or local authorities or by individuals or organizations for the accomplishment of such purpose.

These funds supplement the permanent annual appropriation of $4,655,096 (1933), provided under the Smith-Lever Act (Act of May 8, 1914), as well as those funds provided under the Capper-Ketcham Act, (Act of May 22, 1928). Like the Smith-Lever and Capper-Ketcham funds, they are paid direct to the State colleges of agriculture as federal aid for the promotion of extension work in agriculture and home economics. However, as already indicated, the payments of funds to the States, instead of being based upon the ratio that the rural population of each State bears to the total rural population of the States and Hawaii, are subject to determination by the Secretary of Agriculture as to the amount that he may deem necessary to accomplish the best results in each State.

(e) GENERAL ADMINISTRATIVE EXPENSES

Appropriation, 1932.....	$15,260
Appropriation, 1933.....	15,000
Budget Estimate, 1934.....	13,846
Decrease.....	1,154

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
General Administrative Expenses.....	$14,704	$15,000	$13,846	$1,154(1)

(1) $1,154 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

This appropriation covers the general expenses of the office of the Director of Extension Work, except the Director's salary, which is paid by the Office of the Secretary. The principal items of expense are for the clerical staff of the office, including a personnel section which handles all the personnel papers of the Extension Service, and for the Director's travel.

(f) FARMERS' COOPERATIVE DEMONSTRATIONS

Appropriation, 1932.....	$1,574,430
Appropriation, 1933.....	1,483,320
Budget Estimate, 1934.....	1,440,189
Decrease.....	43,131

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Cooperative Exten. Work..	$1,339,999	$1,314,075	$1,315,418	+$1,343 (1)
Economic Exten. Work.....	44,050	45,000	45,000	- - -
Reclamation Demonstr.....	39,100	39,255	39,255	- - -
Motion Pictures.....	81,721	84,990	85,516	+ 526 (2)
Legislative furlough deduction	- - -	- - -	- 45,000	-45,000 (3)
Total.....	1,504,870	1,483,320	1,440,189	-43,131

Decrease of $43,131 is explained as follows:

(1) Apparent increase of $1,343 by transfer from "Salaries, Office of the Secretary," which has been correspondingly reduced, as pro rata of supply handling charges for 1934.

(2) Apparent increase of $526 by transfer from "Salaries, Office of the Secretary," which has been correspondingly reduced, as pro rata of supply handling charges for 1934.

(3) $45,000 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

General

This appropriation is used for financing the Office of Cooperative Extension Work, the Office of Motion Pictures, Demonstrations on Reclamation Projects, and for direct payments to States on salaries of extension agents. The allotment for 1933 to the Office of Cooperative Extension Work is $1,398,330, of which $870,075 is allotted to the States for general extension work and $39,100 for Reclamation Demonstrations. The Office of Motion Pictures is allotted $84,990.

By far the larger part of the approximately 6,000 State and county extension workers are under Federal appointment, either without compensation or paid at rates running up to $50.00 or more per month. The compensation of these workers from Federal sources is arranged by the State directors of extension out of allotments made to the States from this appropriation at the beginning of the fiscal year. These extension agents are made employees of the Federal Government, as well as of the States and counties, by appointment under this appropriation.

The Office of Cooperative Extension Work examines and recommends for approval budgets and plans of work submitted by State directors of extension, involving the expenditure of Federal and State offset funds; makes an annual examination of extension expenditures in each of the States; and gives general supervision to cooperative extension work. It employs subject-matter specialists who represent the bureaus of the Department in their contacts with the State extension forces, receives and tabulates annual reports from all extension agents, and prepares press material and reports on extension work.

Economic Extension Work. Under this project special attention is given to the extension of information to the States along the lines of cooperative marketing and farm management. The results of investigations of, and information available from, the Bureau of Agricultural Economics and State experiment stations, particularly along the line of price trends, the agricultural outlook, and intentions of farmers to plant crops and breed livestock, foreign and domestic supplies, and demands for agricultural products, and other data of this nature, are assembled and made available, in so far as possible, to the State extension services in an effort to bring before the farm public, through the extension system, the principles and advantages of cooperative marketing, as well as to present to them economic information which will enable them to obtain a better return from their crops and livestock. This unit also cooperates with the Federal Farm Board in its effort to expand and improve cooperative marketing practices.

Demonstration on Reclamation Projects are conducted in cooperation with State extension services in the employment of extension agents in counties which include reclamation projects. The work of these agents is practically identical with that of other extension workers, their activities, of course, being directed especially toward successful farm operations on irrigated land. Because of the special interest of the Government in reclamation projects, more than the usual share of the expense of maintaining these agents is paid from Federal sources, this being the allotment from which such payments are made.

The Office of Motion Pictures, in cooperation with the subject-matter bureaus, prepares motion pictures illustrative of the various phases of the Department's work and makes these pictures available to the public through extension workers and other Department employees, vocational teachers, and other agencies. The films deal with important lines of work in which the department and cooperating State institutions are engaged. Their aim is to acquaint the public with agricultural methods and significance of important activities, and by making common property of the results of scientific investigations, to spread knowledge of improved methods in agriculture, forestry, road building, rural engineering, and kindred pursuits.

(g) AGRICULTURAL EXHIBITS AT FAIRS

Appropriation, 1932	$129,870
Appropriation, 1933	120,000
Budget Estimate, 1934	99,085
Decrease	20,915

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Agricultural Exhibits at Fairs	$121,960	$120,000	$ 99,085	$20,915 (1)

(1) Apparent decrease $20,915. The actual decrease in this appropriation is $15,000 which will be met by reduction of personnel in the District of Columbia to the extent of $6,672 and at the Alexandria, Virginia, factory-warehouse of $2,020. A decrease of $1,500 in traveling expenses and of $4,808 in manufacture of new exhibits will be made, in addition to the personnel reduction. There is an increase of $285, however, by transfer from "Salaries, Office of the Secretary," which has been correspondingly reduced, as pro rata of supply handling charges for 1934. $6,200 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

This appropriation provides for educational exhibits at State, interstate, and international fairs within the United States. The cost of planning, construction and demonstration of the exhibits is paid by the Department, while the State and interstate fairs, through a cooperative arrangement, finance one-half of the cost of transportation, pay for local movement at exhibition points, and labor for installation and dismantling and furnish free space. Each year displays are made at some 40 State and interstate fairs, the usual unit of display being a carload shipment. In addition, in cooperation with the subject-matter bureaus, exhibits are often arranged at conventions and other important gatherings of persons interested in some phase of the Department's work. The Office of Exhibits is the organization which prepares and demonstrates Departmental exhibits at international fairs outside the United States, when specific appropriation is made by the Congress for that purpose.

(h) COOPERATIVE FARM FORESTRY

Appropriation, 1932	$74,000
Appropriation, 1933	69,850
Budget Estimate, 1934	64,787
Decrease.....	5,063

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Cooperative Farm Forestry	$67,200	$69,850	$64,787	$5,063 (1)

(1) $5,063 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

This activity is conducted under Section 5 of the Clarke-McNary Act (U.S.C. pp 427, 428, Secs. 564-570), which authorizes a maximum appropriation of $100,000. The funds are used for the employment of an extension forester, representing the Forest Service and the Extension Service, and for cooperation with the States in the employment of extension foresters. The usual arrangement is for the Federal Government to contribute $1,980 toward the salary of the extension forester, the State providing for the remainder of his salary, State travel expense, clerical help, and other necessary expenses. Usually the State contribution is considerably more than that of the Federal Government. At present this cooperative arrangement is in effect with 32 States, Hawaii, and Puerto Rico. A very large part of the farm acreage of the United States is in wood land and much of the income of farmers in certain sections, particularly the Northeastern and Southern States, is from forest products. County agents generally are not trained in forest management and need the assistance of farm forestry specialists in strengthening their work in this field. The extension forester arranges demonstrations in woodlot management, selection of trees for cutting, estimating of merchantable timber, and in other fields. In many States the extension forester is also active in assisting farmers in forest planting plans, and in interesting members of boys' and girls' clubs in tree planting.

(i) COOPERATIVE AGRICULTURAL EXTENSION WORK
(Permanent annual)

Appropriation, 1932	$4,606,096
Appropriation, 1933	4,656,096
Budget Estimate, 1934	4,666,096
Increase	10,000

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Increase
Cooperative agricultural extension work. ..	$4,605,836	$4,656,096	$4,666,096	$10,000 (1)

(1) The increase in appropriation for 1934 is $10,000, $50,000 having been appropriated in 1933 in accordance with the Act of March 4, 1931 (Public No. 846 -- 71st Congress) entitled "An Act to coordinate the agricultural experiment station work and to extend the benefits of certain Acts of Congress to the Territory of Puerto Rico," which automatically increased this permanent annual appropriation to extend the benefits of extension work to Puerto Rico. The Act of March 4, 1931 contemplated certain action by the Legislature of Puerto Rico, and by the insular government, which action was not completed before July 1, 1932. Certification by the Secretary of Agriculture for making the semiannual payment then due to Puerto Rico was withheld and the $50,000 appropriated for 1933 is reported as an anticipated unexpended amount. This is subject to appeal by the government of Puerto Rico to the Congress at its session in December, and, in any event, it is hoped that the necessary arrangements for cooperation can be completed before July 1, 1933. The Act of March 4, 1931 provides for an additional automatic increase of $10,000 annually, or such part thereof as may be necessary, until the total to which Puerto Rico is entitled under the provisions of this Act is reached. (Full text of the Act shown on page 17).

WORK UNDER THIS APPROPRIATION

This is a permanent annual appropriation for cooperative extension work, provided in the Smith-Lever Act of May 8, 1914, as amended by the extension of this Act to the Territory of Hawaii by the Act of May 16, 1928, and to Puerto Rico by the Act of March 4, 1931. Under the provisions of these Acts, $10,000 is appropriated annually to each State, Hawaii, and Puerto Rico, without requirement of State or Territorial offset. In addition the States, Hawaii and Puerto Rico share in the remainder of the annual appropriation in the ratio which the rural population of each bears to the total rural population of the United States, Hawaii and Puerto Rico. This is the basic act under which cooperative extension work is conducted by the Department and the State colleges of agriculture.

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Note: Also see Miscellaneous Section for "Collection of Loans".

WEATHER BUREAU

(a) GENERAL ADMINISTRATIVE EXPENSES

Appropriation, 1932	$137,680
Appropriation, 1933	136,180
Budget Estimate, 1934	125,975
Decrease	10,205

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Decrease
General Administration	$132,641	$136,180	$125,975	$10,205 (1)

(1) $10,205 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

General administration of the Bureau is centralized in Washington and this appropriation is for the maintenance of fiscal and administrative units, including offices concerned in matters of personnel, accounting, contracts, files, and property.

(b) GENERAL WEATHER SERVICE AND RESEARCH

Appropriation, 1932	$2,585,200
Appropriation, 1933	2,503,218
Budget Estimate, 1934	2,279,750
Decrease	223,468

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Meteorological Observations and Reports	$846,585	$842,290	$810,000	$32,290
General Forecasts & Warnings ...	552,037	569,193	547,100	22,093
Climatology	628,600	647,435	622,400	25,035
Agricultural Meteorology	79,980	82,480	80,380	2,100
River and Flood Service	215,720	221,960	213,350	8,610
Marine Meteorology	85,550	88,200	86,000	2,200
Forest Fire-Weather Warning Service:				
Service	36,190	37,690	37,690	- - -
Research	4,150	4,650	4,650	- - -
Solar Radiation	9,270	9,320	9,080	240
Deduction from Project on account of Legislative Furlough.	- - -	- - -	- 130,900	130,900
Total	2,458,082	2,503,218	2,279,750	223,468 (1)

(1) The reduction of $223,468 is explained as follows:

$29,800 decrease to be effected by removal of office quarters from rented to Federal buildings and reductions in office rentals at numerous field stations throughout the country.

$52,280 reduction due to compulsory retirements under Section 204 of the Economy Act.

$11,138 decrease to be effected by reduction of operating costs through further retrenchment in the purchase of equipment, travel expenses and by such other economies as may be possible.

$130,900 reduction on account of continuation of legislative furlough.

Apparent increase of $650 by transfer from "Salaries, Office of Secretary", which has been correspondingly reduced, as pro rata of supply handling charges for 1934.

WORK UNDER THIS APPROPRIATION

The major activities of the Bureau, with one exception, are conducted under this appropriation and consist, basically, of the collection and dissemination of meteorological data and of the issuance and distribution of meteorological forecasts, warnings, and advices. They are administered by project leaders stationed at Washington, D.C., through the agency of a large field organization embracing more than two hundred permanent field headquarters located in every State of the Union, and elsewhere, and several thousand minor and cooperative stations with similar widespread geographical distribution.

(c) HORTICULTURAL PROTECTION

Appropriation, 1932.....	$65,500
Appropriation, 1933.....	59,200
Budget Estimate, 1934.....	52,353
Decrease.....	6,847

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Fruit-Frost Service	$36,474	$47,936	$45,436	$2,500 (1)
Harvest-Weather Service	5,873	9,464	7,764	1,700 (2)
Fruit-Spray Service	1,600	1,800	1,800	- - -
Deduction from project on account of legislative furlough	- - -	- - -	- 2,647	2,647 (3)
Total	43,947	59,200	52,353	6,847

The reduction of $6,847 is explained as follows:

(1) $2,500 decrease to be effected by postponement by one month of the beginning of the fruit-frost service season in the Texas district; and by effecting operating economies in other districts through reduction of expenditures for instrumental equipment and travel.

(2) $1,700 decrease in expenditures for harvest-weather service by reducing the cost of telegraphing and telephoning forecasts to county agents through substituting the use of radio in distributing such forecasts; also by other operating economies such as a reduction of expenditures for travel and instrumental equipment.

(3) $2,647 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

By means of expressly trained personnel, intensive specialized work is conducted in the field under this appropriation for the protection and benefit of horticultural crops. The work at present is conducted principally in the States of Washington, Oregon, California, Alabama, Florida, New York, and Texas. It embraces the Fruit-Frost Service for the protection of orchards, the Harvest-Weather Service for the assistance of harvesters of hay, wheat, and other crops, and the Fruit-Spray Service for aid in spray operations in which weather conditions are an important factor.

(d) AEROLOGY

Appropriation, 1932.....	$1,709,340
Appropriation, 1933.....	1,465,440
Budget Estimate, 1934.....	1,280,605
Decrease.....	184,835

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Aerological Observations and Reports	$70,150	$72,400	$72,400	- - -
Aviation Forecasts & Warnings	18,436	19,360	19,360	- - -
Commercial Airways Meteorological Service	1,452,522	1,336,580	1,228,745	107,835
Aerological Survey of the United States	35,170	37,100	37,100	- - -
Deduction from project on account of legislative furlough	- - -	- - -	- 77,000	77,000
Total	1,576,278	1,465,440	1,280,605	184,835 (1)

(1) The reduction of $134,835 is explained as follows:

$10,080 reduction due to compulsory retirements under Section 204 of the Economy Act.

$97,920 reduction through cooperation with the Department of Commerce in the coordination of service to commercial airways under the Air Commerce Act of 1926, to be effected by (a) utilizing the services of Government employees to the maximum advantage and economy by extending the duties of employees of one agency to include duties pertaining to those of the other agency wherever such an arrangement is practicable, and within the provisions of governing legislation; and (b) by substituting a four-hourly system of off-airways reports and a four-hourly system of forecasts for the present three-hourly weather service. It is estimated that savings will result as follows: $40,140 in salaries of commissioned employees, $49,780 in wages of non-commissioned employees, and $8,000 in the cost of telegraphing.

$165 apparent increase by transfer from "Salaries, Office of the Secretary", which has been correspondingly reduced, as pro rata of supply handling charges for 1934.

$77,000 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The principal activity conducted under this appropriation is that of supplying meteorological service for Commercial Airways, designated as such by the Department of Commerce under provisions of the Air Commerce Act of 1926. In addition, other projects of work include investigational studies of the upper air in the interest of general weather forecasting and air navigation, the issuance of aviation forecasts and warnings, and the continuation of the Aerological Survey of the United States.

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BUREAU OF ANIMAL INDUSTRY

(a) GENERAL ADMINISTRATIVE EXPENSES

Appropriation, 1932	$185,575
Appropriation, 1933	184,025
Budget Estimate, 1934	170,915
Decrease	13,110

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
General Administration	$177,396	$184,025	$170,915	$13,110 (1)

(1) The decrease of $13,110 is explained as follows:

Apparent increase of $490 by transfer from "Salaries, Office of the Secretary," which has been correspondingly reduced as pro rata of supply handling charges for 1934. $13,600 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

This appropriation is used for payment of overhead charges difficult of allocation to individual divisions, or projects, as the expenses of the chief's office, including appropriation estimates, audits, appointments, library, and editorial activities.

(b) INSPECTION AND QUARANTINE

Appropriation, 1932	$798,720
Appropriation, 1933	740,030
Budget Estimate, 1934	689,660
Decrease	50,370

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Eradication of scabies in sheep	$120,128	$138,150	$138,150	- - -
Eradication of scabies in cattle and horses	117,511	114,150	114,150	- - -
Control over interstate shipment of livestock	290,710	289,930	289,710	$220 (1)
Enforcement of the 28-hour law	30,664	33,000	33,000	- - -
Investigation of the existence of miscellaneous diseases, their control and eradication	208	2,500	2,500	- - -

PROJECT STATEMENT
(continued)

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Quarantine of animals at ports of entry.....	$15,674	$16,000	$15,700	$300(2)
Inspection of animals for import	65,117	68,000	68,000	- - -
Supervision over the importation of animal by-products, forage, etc.	70,050	72,000	72,000	- - -
Inspection and testing of animals for export	8,936	4,500	4,500	- - -
Inspection of vessels carrying export animals.....	1,470	1,800	1,800	- - -
Deduction from project on account of legislative furlough.....			-49,850	49,850 (3)
Total.....	702,468	740,030	689,660	50,370

(1) $220 decrease due to (a) $120 reduction in annual rentals; (b) $100 reduction in salary of an employee appointed to fill a vacancy under that paid the retiring incumbent.

(2) $300 decrease due to filling a vacancy at $2000, whereas the retiring incumbent was paid $2,300.

(3) $49,850 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The work under this appropriation consists of the eradication of scabies in sheep and cattle, in cooperation with the States, and with the Interior Department on Indian reservations; the inspection of southern cattle; the control of the interstate transportation of livestock; the inspection of vessels; the enforcement of the 28-hour law; the inspection and quarantine of imported animals, including the establishment and maintenance of quarantine stations; the supervision over the sanitary handling of hides, skins, wool, and other animal by-products, feeding materials, and fertilizers offered for importation; the investigational and inspection work relative to the existence of contagious diseases and the inspection and mallein testing of animals.

(c) ERADICATING TUBERCULOSIS

Appropriation, 1932.....	$6,505,800
Appropriation, 1933.....	6,061,777
Budget Estimate, 1934.....	5,985,360
Decrease.....	76,417

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Tuberculin testing of cattle at public stockyards for interstate shipment.....	$66,448	$65,700	$66,700	- - -
Eradicating tuberculosis from herds of cattle and from circumscribed areas..	1,071,132	1,127,177	1,125,760	$1,417
Indemnities for animals slaughtered on account of tuberculosis.....	4,785,723	4,840,000	4,840,000	- - -
Investigations of animal tuberculosis.....	23,302	28,900	28,900	- - -
Deductions from project on account of legislative furlough.....			-75,000	75,000
Total.....	5,946,605	6,061,777	5,985,360	76,417 (1)

(1) $76,417 decrease due (a) $817 reduction in rents on account of expected occupancy of Federal buildings; (b) $600, difference between the salary of a retiring employee and that of the present incumbent; (c) $75,000 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The object of this activity is to assist in a campaign to control and eradicate tuberculosis among livestock under a uniform plan in cooperation with the States. This campaign was launched as a Federal aid project after an extensive survey showed the disease was spreading. The States and livestock owners have looked to the Federal Government for leadership in this work since its inauguration, and desire that this assistance be continued, as many failures occurred when independent efforts were employed. Approximately $14,000,000 was appropriated last year by the various States to assist in this campiagn. The appropriation has been divided to provide for the operating expenses of supervision, and indemnity for animals slaughtered.

(d) ERADICATING CATTLE TICKS

Appropriation, 1932	$771,900
Appropriation, 1933	724,400
Budget Estimate, 1934	671,089
Decrease	53,311

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Eradicating cattle ticks	$721,053 (a)$2,311	$724,400	$671,089	$53,311 (1)

(1)$53,311 decrease due/ a. reduction in rents by the expected occupancy of Federal buildings; (b) $51,000 reduction on account of continuation of legislative furlough.

This appropriation is used cooperatively for the payment of salaries and travel, and office expenses, of veterinarians and agents in Alabama Arkansas, Florida, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Texas, and Virginia, in the eradication of the southern cattle tick, which spread splenetic fever infection among cattle. As counties are cleaned up they are released from Federal quarantine, and their surplus livestock may then be shipped to markets without restrictions. The States generally are contributing larger sums to this work than the appropriation provided by the Federal Government. The work is done under State laws and regulations, Federal money being expended for supervision, thus insuring that all measures of eradication be so carried out as to warrant the release of cleaned areas from quarantine.

(e) INVESTIGATIONS IN ANIMAL HUSBANDRY

Appropriation, 1932	$723,400
Appropriation, 1933	674,600
Budget Estimate, 1934	637,150
Decrease	37,450

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Swine investigations	$ 50,574	$ 55,100	$ 55,100	
Sheep and goat investigations	102,214	104,200	104,200	
Horse and mule investigations	35,887	35,200	35,200	
Genetic research	17,254	20,600	20,600	
Beltsville Farm	59,381(a)	39,325	39,325	
Beef cattle investigations ..	186,656(b)	160,215	160,215	
Certification of pedigrees ..	4,958	6,240	6,240	
Poultry investigations	181,320(c)	171,320	171,320	
Purchase of land, Glendale, Arizona	----	4,600(d)	----	$4,600 (1)
Nutrition research	36,371	35,700	35,700	
Meat investigations	36,265	34,200	34,200	
Livestock Production, Big Spring, Texas	12,520	12,500	12,500	
Deduction from project on account of legislative furlough	- - -	- - -	-37,450	37,450 (2)
Total	723,400	674,600	637,150	37,450

(a) Exclusive of $5,000 transferred from "Diseases of Animals."
(b) Includes $12,506 expended in 1931 under the "immediately available" provision.
(c) Includes $7,483 expended in 1931 under the "immediately available provision.
(d) This item reappropriated from the unexpended balance for 1931 is not included in the total.

(1) $4,600 decrease due to the omission of a non-recurring item covering the purchase of additional land at the poultry experiment station at Glendale, Arizona.

(2) $37,450 reduction on account of continuation of legislative furlough.

CHANGE IN LANGUAGE

The omission of the following language is indicated inasmuch as the $4,600 for the purchase of additional land at Glendale, Arizona, is a non-recurring item:

> "together with $4,600 of the unexpended balance of the appropriation for this purpose for the fiscal year 1931, for the purchase of additional land for poultry investigations at Glendale, Arizona, and"

WORK UNDER THIS APPROPRIATION

The animal husbandry investigations of the Bureau of Animal Industry deal with the collection and dissemination of information on livestock problems of regional and national importance having to do with the breeding, feeding, and management of domestic farm animals, including poultry. Results are measured in terms of quantity and quality of the animals and their products, such as meat, eggs, wool, mohair, and farm power. These experiments often are conducted in cooperation with other bureaus and divisions of the Department, with one or a group of State agricultural experiment stations, with farmers and other agencies. Cooperative experiments are conducted during the present fiscal year with 36 States, the contributions of the States being in all cases equal to those of the Bureau and usually much more. The principal Experiment Stations of the Bureau under this item are as follows: The Experiment Farm at Beltsville, Md., with over 1300 acres owned and 1,000 acres rented; the Sheep Experiment Station at Dubois, Idaho, with 28,160 acres in Idaho and 16,650 acres in Montana; the Poultry Experiment Station at Glendale, Ariz., with 10 acres, and 10 to be purchased this year; the Livestock Experiment Farm at Iberia, La., using 505 acres; the Experiment Station at McNeill, Miss., with 1,730 acres; the Morgan Horse Farm at Middle bury, Vt., with 952 acres; and the range station at Miles City, Mont., with 56,300 acres.

(f) INVESTIGATIONS OF DISEASES OF ANIMALS

Appropriation, 1932	$460,000
Appropriation, 1933	422,950
Budget Estimate, 1934	392,900
Decrease	30,050

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Pathological investigations of diseases of livestock ..	$ 53,673(a)	$ 62,550	$ 60,990	$1,560 (1)
Pathological investigations of diseases of poultry	14,847	24,300	24,300	
Pathological investigations of stock poisoning by plants	26,048	25,900	25,900	
Biological investigations of diseases of animals	10,495	12,300	12,300	
Index catalog and collection of parasites	9,668	8,070	5,330	2,740 (2)
Investigation of poultry parasites	19,535	11,000	11,000	
Investigation of swine parasites	24,192	23,000	23,000	
Investigation of ruminant parasites	117,543	108,230	108,230	
Investigation of horse parasites	7,531	9,500	9,500	
Investigation of miscellaneous parasites	12,540	16,100	16,100	
Investigation of treatment of livestock for internal and external parasites	11,326	13,200	13,200	
Development of laboratory station, Beltsville, Md. ..	13,000(b)	----	----	
Breeding and feeding small animals for disease research	8,360	8,800	8,800	
Investigation and control of contagious abortion of animals	93,920	100,000	100,000	
Deduction from project on account of legislative furlough	- -	- -	-25,750	25,750 (3)
Total	423,178	422,950	392,900	30,050

(a) Including $5,000 transferred to "Investigations in Animal Husbandry."
(b) Amount obligated in 1931 under the "immediately available" provision.

(1) $1,560 decrease due to the dropping of the place vacated by an employee retired for age.

(2) $2,740 decrease representing the difference between the salary of a retired employee and that of the present incumbent

(3) $25,750 reduction on account of continuation of legislative furlough.

The basic research which enables the livestock industry to stop the ravages of animal diseases and control inimicable parasites is conducted under this appropriation. There are many animal maladies which uncombated would speedily ruin this vast livestock industry. There are also numberous parasitic enemies which, though usually microscopic in size, are vicious and ruthless in their attacks, destroying tissue, interfering with the normal functions of organs, and reducing the value and productive capacity of affected animals.

It is essential to know first the cause of disease and mode of dissemination, and, if caused by parasites, to know the life histories of the parasites and their resistance to atmospheric conditions and chemicals, before effectual control methods can be devised and applied. This essential knowledge is gained only through patient research and experimentation. The bureau carries on this work independently in its laboratories and experiment stations and in cooperation with State Experiment Stations. At Bethesda, Md. it has for many years maintained a station of 50 acres, owned, which conducts studies of animal diseases both independently and with the Washington laboratories; at Ames, Iowa, it leases 30 acres, with laboratory devoted to the study of hog cholery; and at Beltsville, Md. it has started a station which covers investigation of parasitic diseases, especially in relation to pasture conditions.

Practically all regulatory work, inspection services, and successful methods of disease prevention now in common use are the fruit of research conducted in the past.

(g) INVESTIGATIONS, ERADICATION, AND CONTROL OF HOG CHOLERA

Appropriation, 1932	$499,480
Appropriation, 1933	466,380
Budget Estimate, 1934	434,390
Decrease	31,990

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Hog cholera control looking to eradication	$157,305	$171,450	$171,210	$240 (1)
Investigation of methods of producing immunization against hog cholera	18,671	17,000	17,000	
Investigation of the modes of dissemination of hog cholera	11,205	12,700	12,700	
Control of manufacture, importation, and shipment of viruses, serums, toxins, etc.	265,593	265,230	265,230	
Deduction from project on account of legislative furlough - -		- -	-31,750	31,750 (2)
Total	452,774	466,380	434,390	31,990

(1) $240 reduction in rents by the expected occupancy of Federal buildings.

(2) $31,750 reduction on account of continuation of legislative furlough.

(1) $240 decrease due to reduction in rents by the expected occupancy of Federal buildings.

WORK UNDER THIS APPROPRIATION

Although the efforts of the past to prevent hog cholera losses have brought about a measure of satisfactory results the infection of the disease remains prevalent in all communities devoted to swine raising and there is still an annual loss to that industry of over $15,000,000. Hog cholera is still a menace and preventive measures must be continued to avoid further serious losses. Further study of cholera is necessary as many ways of dissemination are as yet unknown. The supervision of the production of serum and virus and other biological products is mandatory by law. State authorities and farmers need and expect the continuation of protection in this line of work. Cooperation is maintained with 31 states, the aggregate expenditures of which considerably exceed Federal appropriations.

(h) ERADICATING DOURINE

Appropriation, 1932	$32,800
Appropriation, 1933	29,900
Budget Estimate, 1934	29,000
Decrease	900

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Eradicating dourine	$21,917	$29,900	$29,000	$900 (1)

(1) $900 reduction due to continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

In cooperation with State livestock sanitary authorities and on Indian reservations with the Office of Indian Affairs, horses in areas where the infection of dourine is believed to exist are rounded up and samples of blood obtained for subjection to a laboratory test. Horses reacting to the test are slaughtered and owners, other than Indians on a reservation, indemnified by the State and Federal Government. Indemnity to Indians is paid by the Office of Indian Affairs. Surplus stallions are castrated. Wherever possible the roundup in the early summer is followed by a further roundup and retest later in the season. It is hoped that with more vigorous effort, especially on the Indian reservations, this malady may soon be completely exterminated.

(i) PACKERS AND STOCKYARDS ADMINISTRATION

Appropriation, 1932.....	$402,880
Appropriation, 1933.....	374,700
Budget Estimate, 1934.....	350,200
Decrease.....	24,500

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Enforcement of the Packers and Stockyards Act.....	$366,919	$374,700	$350,200	$24,500(1)

(1) $24,500 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The work under this project embraces supervision of the business of packers, stockyard owners, market agencies, and dealers engaged in interstate commerce, and includes regulation of practices and rates and charges for service rendered at posted stockyards. Jurisdiction is exercised, through 20 field offices, over approximately 1,300 market agencies and 3,200 dealers at 73 stockyards. Varied activities are carried on under this project, the more important of which are (1) registration and bonding of market agencies and dealers; (2) investigations of complaints as to unfair and unjustly discriminatory practices; (3) supervision of the testing and maintenance of livestock scales at the various markets; (4) valuation of the properties of stockyard companies, which includes inventories and appraisals of the real estate and physical structures of such companies, together with comprehensive analyses of their financial operations and organization and complete audits of their books and records, for the purpose of obtaining information for the use of the Secretary in determining the reasonableness and lawfulness of rates and charges for stockyard services; and (5) investigations of the operations of commission men and audits and analyses of their books and records in connection with the determination of rates which would be reasonable for them to charge for the purchase and sale of livestock at public markets.

(j) MEAT INSPECTION

Appropriation, 1932:		
1. Annual Act	$2,661,140	
2. Permanent Annual	3,000,000	
Total Appropriation, 1932		$5,661,140

Appropriation, 1933:		
1. Annual Act	$2,604,860	
2. Permanent Annual	3,000,000	
Total Appropriation, 1933		$5,604,860
Budget Estimate, 1934	2,074,590	
Permanent Annual	3,000,000	5,074,590
Decrease		530,270

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Special supervisory inspection	$13,025	$26,150	$26,150	
Laboratory inspection	88,252	89,060	89,060	
Ante-mortem inspection of animals for slaughter	295,439	316,420	297,600	$18,820 (1)
Post-mortem inspection of animals	2,710,776	2,404,630	2,404,630	
Control over the preparation of meats and meat food products	2,404,385	2,692,480	2,636,030	56,450 (2)
Inspection at public markets	1,006	12,975	12,975	
Control over operations conducted under certificates of exemption	2,299	5,895	5,895	
Inspection of imported meats and meat food products	22,431	28,450	28,450	
Chemical investigations of meats and meat food products	10,097	13,400	13,400	
Investigation of pathological conditions noted during meat inspection	13,431	15,400	15,400	
Deduction from project on account of legislative furlough			-455,000	-445,000 (3)
Total	5,561,141	5,604,860	5,074,590	530,270

(1) $18,820 decrease by reason of the retirement of employees whose places will not be filled, including differences in salaries of retired employees and present incumbents.

(2) $56,450 decrease by reason of the retirement of employees whose places will not be filled, including differences in salaries of retired employees and present incumbents.

(3) $455,000 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The purpose of the meat inspection service is to eliminate and dispose of carcasses and meat food products found to be diseased, unwholesome, or otherwise unfit for human food; to see that meat and meat food products for human consumption are prepared in a cleanly manner; to guard against the use of harmful dyes, chemicals, and other deleterious substances; to prevent the use of false or misleading names or statements on labels; and to supervise the interstate transportation, exportation, and importation of meat and meat food products. Inspection was maintained at the packing centers on June 30, 1932, at 745 establishments in 257 cities and towns.

(k) ERADICATING FOOT-AND-MOUTH AND OTHER CONTAGIOUS DISEASES OF ANIMALS

Appropriated, 1932:	
Agricultural Act reappropriating the unexpended balance from 1931, of which there was used	$146,659
Appropriated, 1933:	
Agricultural Act reappropriating the unexpended balance from 1932, of which it is estimated there will be used	165,000
Budget Estimate, 1934:	
It is estimated that there will be used of the unexpended balance	55,000
Decrease	110,000

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Eradicating foot-and-mouth and other contagious diseases of animals	$142,599	$155,000	$50,000	$105,000(1)
Eradication of the European fowl pest and similar diseases in poultry	4,060	10,000	5,000	5,000(2)
Total	146,659	165,000	55,000	110,000

(1) $105,000 decrease due to payment of indemnities in 1933 which are not anticipated in 1934. The indemnities referred to were necessary in connection with the suppression of an outbreak of foot-and-mouth disease which occurred in California during the summer of 1932.

(2) $5,000 due to reduction in work.

WORK UNDER THIS APPROPRIATION

The work under this project is carried on by investigating immediately all reports of outbreaks among livestock in any way suspicious of foot-and-mouth disease. Trained veterinarians are assigned to public stockyards to keep a sharp lookout for symptoms of the disease. In eradication work, inspections are made of all susceptible animals in infected localities. Diseased and exposed ruminants and swine are slaughtered, the owners being reimbursed the appraised value of the animals and property destroyed. Infected premises are thoroughly cleaned and disinfected under official supervision. The work is cooperative, the Department and the States concerned sharing the expenses for animals slaughtered and property destroyed on a 50-50 basis.

Reports of trouble among poultry in any way suspicious of European fowl pest are promptly investigated. As a precautionary measure to prevent the dissemination of the disease in the event an outbreak should occur, cars used in the interstate transportation of live poultry are cleaned and disinfected under Bureau supervision. The procedure followed in combating this infection is somewhat similar to that used in foot-and-mouth disease eradication work, with the exception that the Department does not participate in the reimbursement of owners for losses incurred in the slaughter of diseased and exposed birds.

Limitation on Purchase of Passenger Carrying Vehicles

The language authorizing and limiting the expenditure for purchase of passenger carrying vehicles is submitted in connection with the total for the bureau in order to provide for consideration of this item at the same time the general estimates of the bureau are under consideration. The purchase authorization of the bureau from the general Departmental authorization for 1933 is $49,225. The authorization for 1934, $48,195, therefore constitutes a reduction of $1,030.

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Note: Also see Miscellaneous Section for "Experiments in Livestock Production in Southern United States".

BUREAU OF DAIRY INDUSTRY

(a) GENERAL ADMINISTRATION

Appropriation, 1932	$ 69,580

Appropriation, 1933	69,380
Budget Estimate, 1934	64,265
Decrease	5,115

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Administration	$69,500	$69,380	$64,265	$ 5,115

(1) $5,115 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

For purposes of administration the work of the Bureau of Dairy Industry is divided into six major coordinate divisions, five of which are engaged in scientific research while the sixth, or administrative division, is engaged in administrative activities common to the entire Bureau. These activities include the editorial and information work, engineering, accounts, personnel, property, library, mails and files, messenger and char service, and tabulating machine unit.

(b) DAIRY INVESTIGATIONS

Appropriation, 1932	$ 727,410
Appropriation, 1933	648,068
Budget Estimate, 1934	590,865
Decrease	57,203

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Dairy Manufacturing Investigations & Introduction	$64,532	$68,450	$68,470	$ + 20 (1)
Dairy Herd Improvement	53,334	64,020	64,040	+ 20 (1)
Dairy Cattle Breeding, Feeding, & Management	155,777	150,150	150,170	+ 20 (1)
Ice Cream Investigations	12,762	13,200	13,220	+ 20 (1)
Butter & By-Products Investigations	26,207	27,364	27,384	+ 20 (1)
Condensed Milk & Milk Powder Investigations	30,775	32,960	32,980	+ 20 (1)
Investigations in Bacteriology & Chemistry of Milk	17,772	20,810	20,830	+ 20 (1)
Nutrition of Dairy Cows	59,496	53,860	53,880	+ 20 (1)
Cheese Manufacturing Investigations	29,419	30,360	30,380	+ 20 (1)
Market-Milk Investigations	25,934	36,712	36,729	+ 17 (1)
Operation & Maintenance, Beltsville, Md., Exp. Station ..	98,636	60,782	40,782	-20,000(2)
Missouri Experiment Station	7,723	5,000	5,000	------
Ardmore, South Dakota, Field Station	9,556	------	------	------
Huntley, Montana, Field Station	14,596	14,600	14,600	------
Mandan, North Dakota, Field Station	15,379	17,550	17,550	------
Woodward, Okla., Field Station ...	12,234	12,300	12,300	------
Lewisburg, Tenn., Field Station ..	22,870	22,500	22,500	------
South Carolina Experiment Station	16,687	17,450	17,450	------
Legislative furlough deductions.....	------	------	-37,400	- 37,400(3)
Total.....	673,689	648,068	590,865	-57,203

The decrease of $57,203 is explained as follows:

(1) Apparent increase of $197.00 by transfer from "Salaries, Office of the Secretary", which has been correspondingly reduced, as pro rata of supply handling charges for 1934.

(2) $20,000 reduction due to dropping the non-recurring item of this amount in 1933 for completing the construction of a nutrition laboratory at the Beltsville, Maryland, Experiment Station.

(3) $37,400 reduction on account of continuation of legislative furlough.

CHANGE IN LANGUAGE

The language of the item has been amended by reducing the limitation on expenditures for construction work from $30,000 to $5,000.

WORK UNDER THIS APPROPRIATION

The work under this appropriation involves scientific research and experimentation in practically every phase of the dairy industry. It contemplates the development of fundamental principles of dairy cattle breeding, feeding, and management which, when applied, will make the business of dairy farming a more profitable enterprise by reducing the cost of production through more intelligent breeding, better selection, and more efficient and economical feeding. It contemplates also the development of new methods of manufacturing dairy products and the improvement of existing methods of manufacture; the effective utilization of dairy by-products through the development of new uses for such by-products, and the introduction of such new and/or improved processes of manufacture into commercial creameries and cheese factories. Research in sanitary and economical methods of producing, transporting, processing, and distributing market milk and cream for utilization in fluid form is another important phase of the work being conducted. These investigations are conducted under the following general projects:

(a) Studies of feed and milk production records of cows on test in dairy herd-improvement associ tions to obtain accurate data for the intelligent selection and feeding of dairy cows according to their known producing ability with the view of reducing the cost of production.

(b) A comparison of the lactation records of the daughters of dairy bulls in herds on test in dairy herd-improvement associations with the lactation records of the dams of such daughters to discover dairy bulls which are transmitting to their offspring high milk and butterfat producing ability. This work has shown that only one-third of the bulls being used in herds in dairy herd improvement associations are actually capable of increasing the production ability of the daughters of the dams to which they are bred. The object of this work therefore is to raise the level of production per cow through the use of sires that will actually raise production per cow and thus reduce production costs.

(c) Research to determine the need for new and improved processes of manufacture to provide suitable and profitable outlets for creamery and cheese factory by-products; to determine the factors affecting the quality of butter, cheese, and other products of creameries and cheese factories, and to introduce into such creameries and factories new and/or improved methods of manufacture of dairy products and by-products.

(d) General Breeding Investigations. These investigations involve different methods of mating, such as out-breeding, line-breeding, and inbreeding, to determine which method will insure the greatest uniformity in the transmission of high milk and butterfat producing capacity. This work

has developed the theory of using for generation after generation dairy sires that are pure in their inheritance for high levels of production as shown by the producing ability of their daughters when compared with the production of the dams of such daughters. The use of sires of this quality in successive generations will ultimately result in the breeding of strains of dairy cows that will be pure in their inheritance for a high level of milk and butterfat production. Studies of production records of cows on test in dairy herd-improvement associations disclose that one-third are producing just about enough to pay for their keep, while the remaining third may be considered profitable. Assuming that this ratio prevails for all dairy cows in the United States there are at least 8,000,000 cows being kept at a loss to their owners. The elimination of these eight million cows and the maintenance of production with a smaller number of better cows will result in tremendous savings to the dairy farmers of the country. The object of these investigations is to determine methods whereby animals of higher producing levels can be bred with some certainty thus relieving the industry of the burden of carrying a half or more of its cows which are unprofitable producers.

(e) Studies of the growth of dairy cattle, their resistance to sterility and abortion, and of the production records of the various breed associations for information pertaining to correction factors for age, influence of development on subsequent lactation periods, and other information having a bearing on the laws governing the inheritance of milk and butterfat producing capacity.

(f) Investigations to determine the relation if any between conformation and anatomy of dairy cows to their producing ability, to obtain if possible an accurate and scientific basis for judging the producing ability in dairy cows from outward appearance. The judging of the milk and butterfat production of cows by outward appearance is being taught in the various agricultural schools and colleges, agricultural clubs, etc. The object of this project is to provide a scientific basis for judging the producing ability of dairy cows.

(g) Fertility investigations to ascertain the effect of certain dietary regimes in the correction and prevention of certain forms of sterility, and the effect of consistent exercise on the fertility of males and females, particularly on the recovery from lack of tone in the reproductive organs of females. Sterility in dairy cows is causing considerable losses to farmers. Approximately 10 per cent of all cows eliminated from the dairy herds of the country are disposed of because they are sterile.

(h) Feeding and management investigations to determine the influence of various feed stuffs on growth and milk production; the comparative values of various roughages when cut at different stages of maturity and when made into hay or silage; the effect of fertilization and rotational grazing on the value of pastures for milk production, and the effect of various methods of handling, housing, milking, feeding, exercising, and pasturing on the economy and level of milk production.

The results of our feeding investigations indicate that it may soon be possible to make recommendations that will enable dairy farmers to materially reduce the costs of production.

The work under (d) to (h) inclusive, is conducted largely at seven (7) dairy experiment stations located at Beltsville, Maryland, and at other points throughout the United States, and in cooperation with various State experiment stations.

(i) Investigations of the chemistry and physics of milk and of the bacteria commonly found in milk.

(j) Investigations of the processes by which proteins of the feed are converted into proteins of the milk, the mineral requirements for high milk production and the most satisfactory sources of minerals, and the relation of vitamins of the feed to nutrition and milk production.

(k) Investigations of the chemical and physical changes which take place when milk is concentrated and sterilized, the causes of deterioration of concentrated milk products and the utilization of concentrated milk products in the baking, confectionery, and other industries.

(l) Investigations of the physical and chemical factors involved in the production of a desirable flavor and texture in ice cream.

(m) Investigations of the biological and chemical factors in the production of the characteristic flavor and physical properties of various domestic and foreign varieties of cheese.

(n) Investigations for controlling the quality in butter and the more efficient utilization of skimmilk, buttermilk, and whey.

(o) Research in sanitary and economical methods of producing, transporting, processing, and distributing market milk and cream which is to be utilized in its fluid state, including investigations in the production and farm handling of market milk under experimental as well as practical conditions on dairy farms, and a study of community milk improvement through milk-control and extension agencies on the area plan; investigations of the construction, equipment, and economical operation of milk plants for the processing and preparation for the market of fluid milk and cream; and investigations in the laboratory and at commercial dairy farms to ascertain factors effecting the marketability of milk and cream and to devise remedial measures.

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BUREAU OF PLANT INDUSTRY

(a) GENERAL ADMINISTRATIVE EXPENSES

Appropriation, 1932	$210,266
Appropriation, 1933	209,966
Budget Estimate, 1934	193,639
Decrease	16,327

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
General Administrative	$210,103	$209,966	$193,639	$16,327(1)

(1) The decrease of $16,327 is explained as follows.

Apparent increase of $44 by transfer from "Salaries, Office of the Secretary," which has been correspondingly reduced, as pro rata of supply handling charges for 1934, and $16,371 reduction on account of legislative furlough.

WORK UNDER THIS APPROPRIATION

The direction of the research, service and regulatory work of the Bureau of Plant Industry, the administration of its fiscal affairs, the general supervision of personnel, the administrative review and preparation of its research and other publications and bibliographical and related library work, as well as the partial financing of such service activities as the photographic laboratory, are carried on under this appropriation.

(b) ARLINGTON FARM

Appropriation, 1932	$60,600
Appropriation, 1933	60,500
Budget Estimate, 1934	51,545
Decrease	8,955

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Arlington Farm	$59,890	$60,500	$51,545	$8,955 (1)

The reduction of $4,500 is explained as follows:

(1) $1,620 reduction due to compulsory retirement under Section 204 of the Economy Act; and $2,880 to be effected by general reduction in miscellaneous expenditures, such as supplies, repairs and alterations, equipment, etc. $4,455 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

A highly improved 400-acre tract is maintained in Virginia, near Washington, D. C., provided with laboratories, greenhouses, barns, shops, and other buildings, furnishing facilities for conducting experiments and practical farm tests covering a wide range of research work, national in scope, principally for the Bureau of Plant Industry, but also for Bureaus of Chemistry and Soils, Public Roads, Entomology, Agricultural Engineering and other branches. By furnishing similar facilities common to the many activities from a central station duplication of effort and equipment is avoided and the cost of operation appreciably reduced.

(c) BARBERRY ERADICATION

Appropriation, 1932	$377,140
Appropriation, 1933	196,400
Budget Estimate, 1934	180,722
Decrease	15,678

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Barberry Eradication.....	$296,086	$196,400	$180,722	$15,678 (1)

The reduction of $15,678 is explained as follows:

(1) $9,278 reduction on account of continuation of legislative furlough. $3,200 to be effected by reduction in miscellaneous temporary field labor, and $3,200 in miscellaneous expenditures, such as travel expenses.

While the decrease will necessitate some curtailment as above indicated, it is believed that the more important phases of this activity can be continued.

WORK UNDER THIS APPROPRIATION

The north-central wheat producing States, Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Wyoming, are cooperating with the Bureau to eradicate the common barberry, an intermediate host of the black stem rust, as a means of controlling epidemics of black stem rust of wheat, oats, barley and rye. For the fiscal year 1933, a total of $78,365 aid from States and other cooperating organizations has been certified to the Secretary of Agriculture for application in this cooperative project. With the continued interest shown by all parties to the work, it is evident that substantial outside aid will also be received for the fiscal year 1934.

Since 1918 approximately 18,500,000 rust-susceptible barberry bushes have been destroyed in these States; of this number 176,582 were destroyed in 1931. During the five-year period 1916 to 1920, the average annual loss to wheat from stem rust aside from its effect on quality, was estimated at more than 57,000,000 bushels, while for the five-year period 1926-1930, after millions of barberry bushes had been destroyed, the average annual loss attributed to this disease was estimated at less than 10,000,000 bushels. In spite of the very definite progress which has been made in eradication and in rust control, many bushes remain scattered throughout the 13 cooperating States. Seed from these bushes is spread by birds and other agencies. It is essential that these remaining barberry bushes be reduced in number, not only because of their ability to spread rust, but to prevent reinfestation of land already made free from bushes. (Extension Service, Weather Bureau, and Air Service of Army, Navy and Coast Guard cooperating).

(d) BLISTER RUST CONTROL

Appropriation, 1932:		
1. Agricultural Act	$456,000	
2. 2nd Def. Act, 1931-1932 (for Western Control work)	45,000	
Total Appropriation, 1932		$501,000
Appropriation, 1933		400,000
Budget Estimate, 1934		375,233
Decrease		24,767

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Eastern Control Program	$213,766	$192,000	$192,000	- - -
Western Control Program	266,751	208,000	208,000	- - -
Legislative furlough deduction	- - -	- - -	- 24,767	$ 24,767 (1)
Total	480,517	400,000	375,233	24,767

(1) $24,767 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

Under this appropriation campaigns are conducted for the suppression and control of white pine blister rust by cooperating with State organizations, counties, towns, individual land-owners, and with the Forest Service and National Park Service in the eradication of Ribes (currants and gooseberries) which serve as carriers of the disease, as well as in the application of measures to delay the spread of the disease into uninfected regions; and through experimentation and investigation to develop better control measures.

Eastern Control Program.--Under this project, the Department is cooperating in the control of blister rust with the affected states and through them with individuals, townships and other local agencies. Formal or informal cooperation is maintained with the infested states of Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hamp-

shire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Wisconsin, Maryland, Virginia, West Virginia, Ohio, and Iowa. In this work the Department provides the leadership and coordination of the control activities and the states and their cooperators supply the supervision and labor. Also, cooperation is given the National Park Service and Forest Service in the form of technical leadership and assistance in control work on lands under their administration and the Bureau of Plant Quarantine in aiding nurseries to meet the provisions of Federal Quarantine 63. The Eastern control program is essential to assure the productivity of white pine forests containing standing timber valued at over $126,000,000 to preserve regional scenic and recreational white pine values of great economic importance, to protect thousands of acres of young growth which will form the next timber crop, to maintain control of the disease on initially protected pine lands aggregating 8,500,000 acres, and to apply control measures on the remaining unprotected pine acreage.

Western Control Program.--The work under this project is located in the States of California, Idaho, Montana, Oregon and Washington. Formal or informal cooperation is maintained with the affected states. In this work the Department assists the cooperating states and local agencies in the application of control measures on state and privately-owned lands and furnishes leadership and coordination of the control activities. The forest lands are in mixed ownership and control can be accomplished only be combining and coordinating the efforts of all owners into a single program of action. Cooperation in the form of technical leadership and assistance is given the Forest Service in protecting valuable white pines in the national forests, to the National Park Service in protecting valuable areas of white pine in the national parks, and to the Bureau of Plant Quarantine in connection with Federal Quarantine 63. The blister rust control program in the Western United States is essential to assure the productivity of forest lands bearing western white and sugar pine timber valued at $288,000,000 to maintain industries dependent upon the white pines that represent 50% of the business of the western white pine region as well as valuable economic and business interests in the sugar pine region of California, to protect millions of acres of young growth that will form the next timber crop, to prevent forced timber cutting and demoralization of the Nation's lumber markets, to maintain control of the disease in areas already protected and to apply control measures to the remaining unprotected areas.

(e) BOTANY

Appropriation, 1932	$56,260
Appropriation, 1933	42,060
Budget Estimate, 1934	39,113
Decrease	2,947

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Economic Botany	$22,605	$22,607	$22,607	- - -
Weed Investigations	3,408	2,420	2,420	- - -
Blueberry Investigations	8,143	2,393	2,393	- - -
Grass Investigations	15,484	14,640	14,640	- - -
Legislative furlough deduction	- - -	- - -	- 2,947	2,947 (1)
Total	49,640	42,060	39,113	2,947

(1) $2,947 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

Work under this appropriation consists of identification of cultivated plants, as well as wild plants, investigations of troublesome weeds through field studies, and the domestication and improvement of the blueberry.

Economic Botany.--Work under this project includes identification of wild and cultivated plants as needed in the investigations of the Department of Agriculture, and for cooperating institutions and individuals, maintenance of an economic herbarium, maintenance of a card catalogue of plants in the American nursery trade, and experiments in the improvement and utilization of wild plants.

Weed Investigations.--Work under this project during the fiscal year 1933, will necessarily be confined to the handling of the Department's large correspondence on weeds and weed eradication and the abstracting and compiling of new information from State Experiment Stations and other sources.

Blueberry Investigations.--Work under this project consists of blueberry breeding and propagation experiments, which have resulted in the development of a blueberry industry in New Jersey, and to a limited extent these experiments have been extended to the Coastal Plain region from North Carolina to Florida.

Grass Investigations.--Work under this project consists of systematic investigations and identification of grasses, including the preparation of a manual of North American grasses.

(f) CEREAL CROPS AND DISEASES

Appropriation, 1932	$574,060
Appropriation, 1933	554,485
Budget Estimate, 1934	488,200
Decrease	66,285

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Cereal Production and Improvement	$344,235	$341,395(a)	$329,110	$12,285 (1)
Cereal Diseases	209,667	213,090(b)	196,190	16,900 (2)
Legislative furlough deduction	- - -	- - -	-37,100	37,100 (3)
Total	553,902	554,485(c)	488,200	66,285

(a) Inclusive of $4,820 of the $7,500 transferred to Fruit and Vegetable Crops and Diseases.
(b) Inclusive of $2,680 of the $7,500 transferred to Fruit and Vegetable Crops and Diseases.
(c) Inclusive of $7,500 transferred to Fruit and Vegetable Crops and Diseases for Chinsegut Hill Experiment Station.

There is an apparent reduction of $29,485 in this item, but owing to the transfer of $300 from "Salaries, Office of the Secretary," which has been correspondingly reduced, as pro rate of supply handling charges for 1934, there is an actual decrease of $29,185, which is explained as follows:

(1) $12,285 decrease under Cereal Production and Improvement is due to the transfer of $4,820 to Fruit and Vegetable Crops and Diseases and a decrease of $7,465, to be effected by a reduction in miscellaneous labor, travel expenses and structures.

(2) $16,900 decrease in Cereal Diseases is due to the transfer of $2,680 to Fruit and Vegetable Crops and Diseases, and a decrease of $14,220 to be effected by a reduction in miscellaneous labor, travel expenses and structures.

While the decrease will necessitate some curtailment of the program of work on the projects above indicated, it is believed that the more important phases of all of these activities can be continued.

(3) $37,100 reduction on account of continuuation of legislative furlough

WORK UNDER THIS APPROPRIATION

The work under this appropriation includes studies of cultural practices with cereal crops and investigation of their possible improvement, comparison of yield and adaptability to different regions of different varieties of cereals, together with the breeding and selection of improved and better adapted varieties, and development of methods of control of the diseases of all cereal crops. Cooperative experiments are carried on at most of the State Agricultural Experiment Stations but no independent field stations are maintained.

Cereal Production and Improvement.--Under this project cooperative experiments are carried on in the development of new varieties of cereals of superior yield and quality and resistant to drought, cold, insect pests, and diseases, in the determination of cultural and fertilizer requirements of cereals, etc. The object of these studies is to determine methods for improvement in quality of such important crops as wheat, corn, oats, barley, rice, grain sorghums, seed flax, etc.

Cereal Diseases.--Work under this project consists of cooperative investigations leading to methods of control of foot rots of wheat, wheat and barley scab, corn root, stalk and ear rots, stinking smut of wheat, wheat rust, flax wilt, and other diseases of small grains and flax in order to insure the efficient production of these crops now subject to serious losses each year from disease.

(g) CITRUS CANKER ERADICATION

Appropriation, 1932	$40,000
Appropriation, 1933	30,000
Budget Estimate, 1934	26,542
Decrease	3,458

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Citrus Canker Eradication ..	$36,633	$30,000	$26,542	$3,458 (1)

(1) The reduction of $3,458 is explained as follows:

$2,000 decrease under Citrus Canker Eradication to be effected by general reduction in travel expenses. $1,458 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

In cooperation with Florida, Alabama, Mississippi, Louisiana, and Texas, the Bureau conducts a campaign for the eradication of citrus canker, a bacterial disease of citrus fruits and trees, by the thorough inspection of nurseries and citrus groves, formalin treatment of infected soil, protective spraying of groves exposed to infection, and destruction of diseased trees. As a result of the vigorous campaign, the disease has been practically eliminated from the commercially important areas, but scattered infections still occur sporadically. Each State is now maintaining a close reinspection of all citrus properties and this will be continued for several years because of the extreme infectiousness of the disease. No infections have been found in Florida, Alabama or Mississippi for several years but scattered infections in orchards and dooryard plantings outside of commercial districts have been found in Texas and Louisiana.

(h) COTTON PRODUCTION AND DISEASES

Appropriation, 1932	$233,140
Appropriation, 1933	218,440
Budget Estimate, 1934	204,921
Decrease	13,519

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Acclimatization, Breeding, and Cultural Improvement of Cotton	$143,238	$143,436	$143,559	+$ 123 (1)
Cotton Diseases	53,362	50,504	50,504	- - -
Egyptian Cotton Breeding	24,489	24,500	24,500	- - -
Legislative furlough deduction.	- - -	- - -	- 13,642	-13,642 (2)
Total	221,089	218,440	204,921	-13,519

(1) The apparent increase of $123 is a transfer from "Salaries, Office of the Secretary", which has been correspondingly reduced, as pro rata of supply handling charges for 1934.

(2) $13,642 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The work under this appropriation consists chiefly of research toward acclimatization of tropical varieties of cotton, breeding of superior varieties of cotton, improved cultural practices, and investigation and control of diseases. In addition to cooperative experiments at State Agricultural experiment stations, field stations are maintained at the following points:

Sacaton, Arizona	James Island, South Carolina
Bard, California	Wadmalaw Island, South Carolina
San Diego, California	Greenville, Texas
Shafter, California	San Antonio, Texas

Acclimatization, Breeding and Cultural Improvement of Cotton.--Work under this project consists of the acclimatization and adaptation in the Southern and Southwestern United States of cotton introduced from tropical regions, the breeding of superior varieties of cotton including the Sea Island cotton, the improvement in methods of cotton culture under boll-weevil condition, the development of one-variety communities, and the establishment of community supplies of pure seed. Superior types of cotton have been discovered in Mexico and Central America which are now being grown extensively in the United States, and improved cultural methods are being more generally applied. The system of community production of one variety is being established through cooperation with local agencies in all of the cotton-growing States. (Bureau of Agricultural Economics, Federal Farm Board and Bureau of Indian Affairs cooperating).

Egyptian Cotton Breeding.--Work on this project includes the selection and hybridization of strains of Egyptian cotton through the ordinary methods of plant breeding, testing promising strains on a field basis, and the making

available to farmers of the variety which yields best and which produces fiber giving best results in spinning tests, in the areas now growing Pima and other new long-staple cottons. This work aims to extend the production of Egyptian cotton in the Southwestern States, thus utilizing the resources of production of that district and avoiding competition with the eastern cotton districts in the production of upland cotton. (Bureau of Agricultural Economics cooperating).

Cotton Diseases.--Work under this project consists of research to develop methods of control of cotton diseases such as wilt, root rot and other disorders affecting the profitable production of cotton. A special investigation of cotton root-rot is being carried on in cooperation with the Bureau of Chemistry and Soils and with the State Experiment Station of Texas. Notable progress has been made in determining the habits of the fungus, but except for the promising results thus far secured in the use of dilute ammonia water in controlling the disease, the progress in eradication or commercial control has been disappointing. This disease causes millions of dollars damage to the cotton crop every year and also is a serious source of loss to several species of orchard fruits.

(i) DRUG AND RELATED PLANTS

Appropriation, 1932	$58,120
Appropriation, 1933	37,720
Budget Estimate, 1934	39,840
Increase	2,120

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase or Decrease
Drug, Poisonous and Oil Plants	$ 34,327	$ 32,720	$32,720	- - -
Downy Mildew of Hops.....	16,238	5,000(a)	10,000	+ $5,000 (1)
Legislative furlough deduction			-2,880	- 2,880 (2)
Total.....	50,610	37,720(a)	39,840	+ 2,120

(a) Exclusive of $5,000 transferred from Forage Crops and Diseases.

The increase of $2,120 is explained as follows:

(1) The direct appropriation for Drug and Related Plants for the fiscal year 1933 is $37,720. In order to meet the emergency caused by the Downy mildew of hops, $5,000 additional was transferred from the appropriation Forage Crops and Diseases for the present fiscal year and will become part of the appropriation for 1934, increasing this item in that amount for 1933 and 1934, and the appropriation for Forage Crops and Diseases will be decreased accordingly for 1933 and 1934. In addition to this transfer the sum of $5,000 was allotted to this project from the project, Drug, Oil and poisonous plants, making available for downy mildew of hops $10,000. The appropriation for 1932 carried an increase of $20,000 for investigation of methods of control of the downy mildew of hops recently becoming a very destructive disease in the Pacific Northwest. These funds are not carried in the 1933 Appropriation Act but in view of the serious emergency now known to be threatening hop growers the most essential portions of the investigations have been carried forward.

(2) $2,880 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

Scientific studies are made on the growing of drug, essential oil, oilseed and related crops, and on the distribution and economic importance of plants poisonous to livestock. Cooperative experiments are located at the Oregon Agricultural Experiment Station.

Drug, oil and poisonous plants.--Work under this project consists of investigations of the growing of plants yielding drugs, essential oils, drying oils and related products for the purpose of their introduction as farm crops, and of the preparation and marketing of commercial products from such plants; also investigation of the distribution of important wild medicinal plants and plants poisonous to livestock and of the toxic constituents of such plants.

Hop mildew.--Under this project an investigation is in progress on the downy mildew of hops which during the past two or three years has caused material damage in the hop yards of the Pacific Northwest. Experimental spraying of infected fields under varying conditions and dusting of the crowns is well under way to develop eradication and control measures and to reduce losses to growers. A small experimental hop yard has been established in which by cross-breeding efforts are being made to produce mildew-resistant varieties.

(j) DRY-LAND AGRICULTURE

Appropriation, 1932	$265,740
Appropriation, 1933	242,260
Budget Estimate, 1934	227,639
Decrease	14,621

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Dry-land Crop Production	$181,361	$177,520	$177,520	- - -
Dry-land Fruit and Vegetable Production	35,659	26,860	26,860	- - -
Cooperative Shelter-belt Demonstrations and Experimental Test Plantings	36,238	37,880	37,880	- - -
Legislative furlough deduction	- - -	- - -	-14,621	$14,621 (1)
Total	253,258(a)	242,260	227,639	14,621

(a) Exclusive of $79,592 for Cheyenne Horticultural Field Station transferred to Fruit and Vegetable Crops and Diseases.
(1) $14,621 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

Under this appropriation the problems of agricultural and horticultural development of the Great Plains area, a region classed as semi-arid, are studied at field stations to obtain the fullest possible information concerning soil and climatic conditions throughout the region and the agri-

cultural effectiveness of each of the many different methods of tillage and crop rotations that can be considered as more or less suitable for this region where irrigation is not available.

Field stations are maintained at the following points:

Akron, Colorado	Woodward, Oklahoma
Tucumcari, New Mexico	Big Spring, Texas
Mandan, North Dakota	Dalhart, Texas
Lawton, Oklahoma	Sheridan, Wyoming

Dry-Land Crop Production.--The work under this project consists of rotation and tillage experiments with cereal crops, forage crops and cotton, as well as pasture conservation and development in this region. (Bureau of Animal Industry cooperates with livestock experiments at the field station at Big Spring, Texas.) The problems of the possibilities and methods of crop production under dry farming conditions are common to all the States lying in whole or in part in the Great Plains. Crop rotation, cultural methods, and pasture practices are concerned not only with the immediate effects but with the cumulative effects in increasing, maintaining or decreasing the productivity of the soil.

Dry-Land Fruit and Vegetable Production.--The work under this project consists of demonstrations of the feasibility of growing in this semi-arid region certain fruits and vegetables which can be produced on a home-garden scale. Under present economic conditions, the importance of the home garden and orchard in maintaining the agricultural population cannot be overestimated.

Cooperative Shelter-Belt Demonstrations and Experimental Test Plantings.--Under this project trees and ornamental plants that can be grown in dry regions are propagated and placed with experimenters for testing and demonstrations of trees planted as shelter belts are developed and encouraged. The dry lands naturally are treeless regions, but gratifying success has attended systematic effort to determine the kinds of trees and methods of care and culture necessary in their successful growth for shade and shelter.

(k) FORAGE CROPS AND DISEASES

Appropriation, 1932	$279,375
Appropriation, 1933	262,005
Budget Estimate, 1934	225,500
Decrease	36,505

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Alfalfa	$70,196	$68,312(a)	$64,260	$4,052 (1)
Red and Sweet Clover	34,675	35,003(b)	31,798	3,205 (2)
Soybeans	29,655	28,288	26,560	1,728 (3)
Sorghums	8,967	8,703	7,989	714 (4)
Winter Legumes, Green Manures and Acid Tolerant Legumes	41,288	41,513(c)	37,292	4,221 (5)
Pastures, Grasses and Fine Turf	80,980	80,186(d)	72,201	7,985 (6)
Legislative furlough deduction	- - -	- - -	-14,600	14,600 (7)
Total	265,761	262,005(e)	225,500	36,505

(a) Inclusive of $1,000 transferred to Drug and Related Plants for Downy Mildew of Hops.
(b) Inclusive of $1,500 transferred to Drug and Related Plants for Downy Mildew of Hops.
(c) Inclusive of $1,000 transferred to Drug and Related Plants for Downy Mildew of Hops.
(d) Inclusive of $1,500 transferred to Drug and Related Plants for Downy Mildew of Hops.
(e) Inclusive of $5,000 transferred to Drug and Related Plants for Downy Mildew of Hops.

There is an apparent reduction of $38,605 in this item, but owing to the transfer of $100 from "Salaries, Office of the Secretary," which has been correspondingly reduced, as prorata of supply handling charges for 1934, there is an actual decrease of $36,505, which is explained as follows:

(1) $4,052 decrease under Alfalfa is due to the transfer of $1,000 to Drug and Related Plants, and $3,052 decrease to be effected by a general reduction in travel and other expenditures.

(2) $3,205 decrease under Red and Sweet Clover is due to transfer of $1,500 to Drug and Related Plants and $1,705 decrease to be effected by a general reduction in travel and other expenditures.

(3) $1,728 decrease under Soybeans to be effected by a general reduction in travel and other expenditures.

(4) $714 decrease under Sorghums to be effected by a general reduction in travel and other expenditures.

(5) $4,221 decrease under Winter Legumes, Green Manures, and Acid Legumes is due to transfer of $1,000 to Drug and Related Plants, and $3,221 decrease to be effected by a general reduction in travel and other expenditures.

(6) $7,985 decrease under Pastures, Grasses and Fine Turf is due to transfer of $1,500 to Drug and Related Plants, and $6,485 decrease to be effected by a reduction in supplies and materials, travel expenses, and special and miscellaneous current expenses.

(7) $14,600 reduction on account of continuation of legislative furlough.

Of the above decreases $1,980 will be met by discontinuing the services of a full-time clerk in Washington, D. C.

While the decrease will necessitate some curtailment of the program of work on the projects above indicated, it is believed that the more important phases of all of these activities can be continued.

WORK UNDER THIS APPROPRIATION

Under this appropriation the work consists chiefly of field studies throughout the United States pertaining to the production, improvement and control of diseases of all crop plants used for forage, either as hay, fodder, silage, or pasture, and incidentally of all plants used for green manuring, turf production and soil binding, in cooperation with the State agricultural experiment stations but no independent field stations are maintained.

Alfalfa.--Under this project are conducted investigations of alfalfa improvement through breeding and selection of superior varieties, development of improved cultural methods, and studies of diseases of alfalfa, particularly with reference to wilt and methods of determining relative resistance to this disease for stabilizing the production of this important forage crop, particularly applicable in the Corn Belt and Great Plains States. (Bureau of Entomology cooperating).

Red and sweet clover.--The work under this project consists of research and experiments on breeding superior clover varieties, improvement of cultural methods, and studies leading to control of mildew and other clover diseases, the results of which are of value to practically the entire United States. (Bureau of Entomology cooperating).

Soybeans.--The work under this project consists of introduction of new soybean varieties, determination of the oil and protein content of various varieties, selection of better forage and grain varieties for certain localities and varieties resistant to nematodes, root rot, etc, as this crop is being grown on constantly increasing acreage in the eastern and middle western United States. (Bureau of Chemistry and Soils and Bureau of Home Economics cooperating).

Sorghums.--The work under this project consists of investigations concerning the use of sorghum for forage including the introduction and development by selection and breeding of new varieties, genetic studies and the determination of effective cultural methods for the sorghums which are the most reliable feed crops in the semi-arid regions of the Great Plains as well as in the southeastern States.

Winter legumes, green manures, and acid tolerant legumes.--Under this project the growing of winter legumes and green manures is encouraged for soil improvement, and new legumes such as crotalaria are introduced and propagated in order to secure satisfactory succeeding crops on sandy, acid and other difficult soils of the southern Middle West. (Bureau of Chemistry & Soils cooperating).

Pasture, grasses and fine turf.--Under this project investigations are in progress to determine the best methods of establishing and maintaining good pastures and improving existing pastures. New grasses for pastures and for fine turfs such as are required for lawns, golf courses and airways are introduced and tested, fertilizer needs are determined and methods of controlling diseases and insects on golf turf are developed. (Bureau of Animal Industry and Bureau of Dairy Industry cooperating).

(1) FOREIGN PLANT INTRODUCTION

Appropriation, 1932	$228,140
Appropriation, 1933	175,000
Budget Estimate, 1934	163,574
Decrease	11,426

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Foreign Explorations	$29,827	$14,835	$14,835	- - -
Experimenters' Service	180,794	151,937	152,037	+ $100 (1)
Plant Geography	8,214	8,228	8,228	- - -
Legislative furlough deduction.	- - -	- - -	- 11,526	-11,526 (2)
Total	218,835	175,000	163,574	- 11,426

(1) Apparent increase of $100 by transfer from "Salaries, Office of the Secretary," which has been correspondingly reduced, as pro rata of supply handling charges for 1934.

(2) $11,526 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The work under this appropriation consists of importing and testing plant material from foreign countries with a view to establishing in the United States new plant industries.

Field stations are maintained at the following points:

Chico, California	Savannah, Georgia
Coconut Grove, Florida	Glenn Dale, Maryland

Foreign explorations.--Foreign explorations are carried on by special agricultural explorers for the purpose of securing new and promising types of plants superior to those now grown in this country and having promise in aiding in the development of new crop industries. World-wide exploration

work is also carried on through correspondents and collaborators in foreign countries as an adjunct to the field work and having in view the same objects and purposes. The search in foreign countries for new crop plants is planned and carried out with a view to aiding agriculture in all parts of the country and is therefore widely regional and cooperative breeding or variety tests are under way with many of the State Experiment Stations.

Experimenters' service.--By means of organized cooperation carried on with crop specialists in the United States Department of Agriculture and State Agricultural Colleges and Experiment Stations, together with selected lists of private individuals, all introduced plant material is subjected to widespread regional tests and experiments with a view to determine its freedom from dangerous pests and adaptability to the soils and climates of this country before extensive cultivation is advised. Similar tests and experiments are also carried on at four special plant introduction gardens so located as to secure widespread regional effects of soil and climate. The experimenters' service is primarily designed to make sure that the new plant material introduced is free from dangerous pests and that it has potential value in upbuilding American agriculture.

Plant geography.--Under this project investigations are carried on of the relation of crop distribution to climatic and soil conditions, and studies are made of the important problems in plant production from a geographical point of view, with a view to locating foreign sources of potentially valuable crops and to insure that plantings of such crops, if introduced, are provided with soil and climatic conditions suited to their needs. This work endeavors to chart the field in advance so that there is a minimum of lost motion in the search for new crops and the proper placing of these crops for experimental use.

(m) FOREST PATHOLOGY

Appropriation, 1932:		
1. Agricultural Act	$223,572	
2. 2nd Def. Act, 1931-1932 (for Dutch Elm Diseases)	13,332	
Total Appropriation, 1932		$236,904
Appropriation, 1933		220,436
Budget Estimate, 1934		206,955
Decrease		13,481

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Diseases of Forest Trees and Forest Products	$120,886	$120,000	$120,000	- - -
Diseases of shade trees, shrubs and chestnut orchards	68,000	65,502	65,502	- - -
Tree Disease Emergencies	34,934	34,934	34,934	- - -
Legislative furlough deduction	- - -	- - -	-13,481	13,481 (1)

(1) $13,481 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

Under this appropriation the diseases of forest and shade trees and shrubs, including white-pine blister rust, chestnut blight, heart-rot of Douglas fir, European larch canker, and many other diseases, are investigated with a view to determining methods of control.

No independent field stations are maintained but pathologists cooperating with the Forest Service and State forestry institutions are stationed at:

San Francisco, California
New Haven, Connecticut
New Orleans, Louisiana
Albuquerque, New Mexico
Wooster, Ohio
Portland, Oregon
Philadelphia, Pennsylvania
Providence, Rhode Island
Madison, Wisconsin

Tree disease emergencies.--Work under this project consists of the investigation of the newly discovered Dutch elm disease in this country, a scouting program to determine occurrence of European larch canker and investigations leading to its control, as well as preliminary studies of the Woodgate rust. The causes and methods of control of tree diseases must be sought for when they first appear in the country, before they have become established and have caused serious losses. In these early stages it is often possible to eradicate the diseases. The Dutch elm disease, so serious in Europe, threatens the widely distributed American elm. The European larch canker has importance to the larch forests of the northern and western states and its relation to Pacific Coast Douglas fir must be cleared up. The danger of the Woodgate rust is to the pitch pines of the South and the Pacific Coast. (Bureau of Plant Quarantine cooperating).

Diseases of shade trees, shrubs, and chestnut orchards.--Work under this project consists of investigations leading to the control of the diseases of street and other ornamental trees and shrubs, as well as the diseases occurring in cultivated chestnut trees, including cooperation with the Department of the Interior in studying diseases of trees in the National Parks. The demand for information on the diseases of ornamental, street, and park trees is far greater than can be supplied and many hundreds of specimens are received each year for diagnosis. The disease and breeding investigations of chestnut are undertaken with a view to establishing a chestnut-orchard industry in this country. (Department of the Interior and Bureau of Entomology cooperating).

Diseases of forest trees and forest products.--Work under this project, carried on mainly at the Experiment Stations of the Forest Service, consists of investigations of the native diseases attacking standing trees in the forest as well as the fungous discolorations and decays of logs, lumber, etc., and is part of the program authorized by the McNary-McSweeney Act. Research on the long-introduced diseases chestnut blight and white-pine blister rust is also included, forming a basis for the development of resistant forest chestnuts and for the local control of the rust. The management of government, state and private forests on a profitable basis depends upon the prevention of loss from disease. Because of the long life of forest trees, study of these diseases must be continuous over a period of years. Investigation of fungous injury to forest products is under way, including a campaign

against the sap-stain for which the southern lumbermen are furnishing part of the funds and to meet the demands for information by other groups of wood producers and consumers. (Forest Service, Bureau of Chemistry and Soils, and Bureau of Entomology cooperating).

(n) FRUIT AND VEGETABLE CROPS AND DISEASES

Appropriation, 1932		$1,500,360
Appropriation, 1933:		
1. Agricultural Act	$1,200,000	
2. Agricultural Act, 1932 funds for pecan station unexpended reappropriated	15,000	
Total Appropriation, 1933		1,215,000
Budget Estimate, 1934		1,144,100
Decrease		70,900

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase or Decrease
Deciduous Fruit Production Investigations	$188,251	$167,368	$167,368	- - -
Nut Production Investigations.	120,521	113,293	113,293	- - -
Subtropical Fruit Production Investigations	21,409	14,436(b)	21,936	$ 7,500(1)
Plant Propagation, Nursery Management and Stock Storage...	33,254	29,036	29,036	- - -
Crop Physiology	100,825	83,593	83,593	- - -
Fruit Disease Investigations..	214,541	174,768	174,768	- - -
Vegetable Production, Standardization and Improvement	142,077	113,865	113,865	- - -
Vegetable Disease Investigations	118,132	97,780	97,780	- - -
Potato Investigations	55,937	46,547	46,547	- - -
Fruit and Vegetable Handling, Transportation and Storage Investigations.....	223,227	190,166	190,166	- - -
Fruit and Vegetable Utilization	44,115	38,649	38,649	- - -
Floriculture and Landscape Gardening	14,555	12,482	12,482	- - -
Bulb Culture	25,131	19,903	19,903	- - -
Diseases of Ornamental Plants.	31,914	26,743	26,743	- - -
Plant Physiological Laboratory	13,607	10,865	10,865	- - -
Pathological Laboratory	10,157	9,932	10,932	1,000(2)
Cheyenne Horticultural Field Station	79,592	65,574 (c)	65,574	- - -
Legislative furlough deduction	- - -	- - -	-79,400	-79,400(3)
Total.....	1,437,245(a)	1,215,000(d)	1,144,100	-70,900

(a) Inclusive of $79,592 transferred from Dry-land Agriculture.
(b) Exclusive of $7,500 transferred from Cereal Crops and Diseases for Chinsegut Hill Experiment Station.
(c) Inclusive of $65,574 for Cheyenne Horticultural Field Station carried in the regular item for Fruit and Vegetable Crops and Diseases for 1933.
(d) Inclusive of $15,000 carried in the proviso for 1933, being the unexpended balance of the amount carried for 1932 for the Mississippi Valley Pecan Station.

There is an apparent increase of $8,500 in this item, but owing to the transfer of $1,000 from "Salaries, Office of the Secretary", which has been correspondingly reduced, as pro rata of supply handling charges for 1934, there is an actual increase of $7,500, which is explained as follows:

(1) $7,500 increase under Subtropical Fruit Production Investigations is for the maintenance and protection of citrus groves on the Chinsegut Hill Bird Refuge near Brooksville, Florida. The bird refuge donated to the Department during the fiscal year 1932 in the vicinity of Brooksville, Florida, has citrus groves comprising a total of approximately 70 acres. The development and care of these citrus plantings would logically come within this Division, but in view of the material reductions of this item for 1933, funds can not be diverted for this purpose without disorganization or elimination of one or more important lines of work, and therefore it has been necessary to transfer this amount from the appropriation for Cereal Crops and Diseases which has been reduced accordingly for 1934.

(2) Apparent increase of $1,000 from "Salaries, Office of the Secretary", which has been correspondingly reduced, as pro rata of supply handling charges for 1934.

(3) $79,400 reduction on account of continuation of legislative furlough.

CHANGE IN LANGUAGE

The provision that $15,000 shall be available toward the establishment of a pecan experiment station in Mississippi is omitted as this station is now being established

WORK UNDER THIS APPROPRIATION

Under this appropriation investigations are conducted to determine the best methods of culture, propagation, breeding, selection, disease control, and related activities as affecting the most profitable production of orchard fruits, small fruits, nuts, vegetables, ornamentals, nursery stocks, and related plants. The interrelation of various orchard practices and problems concerned with the nutrition and physiology of the various horticultural plants are studied. Investigations for determining the best methods of harvesting, packing, shipping, storing, and utilizing horticultural products are also conducted, including the physiological and related changes of perishables during marketing and storage. In addition to cooperative activities with the State Agricultural Experiment Stations, Bureau of Indian Affairs of the Department of the Interior, and others, field stations and laboratories are maintained at the following points:

Spring Hill, Alabama
Chula Vista, California
Fresno, California
Indio, California
Los Angeles, California
Oakville, California
Pomona, California
Riverside, California
Sacramento, California
Greeley, Colorado
Eustis, Florida
Orlando, Florida
Albany, Georgia
Fort Valley, Georgia
Philema, Georgia
Chicago, Illinois
Vincennes, Indiana
Robson, Louisiana
Shreveport, Louisiana
Presque Isle, Maine
Beltsville, Maryland
Bethesda, Maryland
Meridian, Mississippi
Springfield, Missouri
Toms River, New Jersey
New York City, New York
Chadbourn, North Carolina
Charleston, South Carolina
Hood River, Oregon
Austin, Texas
Brownwood, Texas
Bellingham, Washington
Seattle, Washington
Wenatchee, Washington
Yakima, Washington
Cheyenne, Wyoming

Deciduous fruit production investigations.--This work includes studies of the type of growth associated with high production and the fertilizer treatment, water requirements and other cultural factors in growing tree fruits under experimentation, as well as production studies on grapes and the small fruits such as strawberries, raspberries, and blackberries. By hybridization and selection improved varieties of peaches, plums, apples, pears, apricots, grapes and berries are being developed. Selections of bud variations of deciduous fruit varieties are propagated to develop improved strains or varieties of these fruits. This work is of especial importance to small fruit breeding in North Carolina, Maryland and Oregon, to the breeding and bud selection of deciduous fruits for all major fruit sections, and to the grape production particularly in California, South Carolina and Mississippi. (Bureau of Agricultural Egnineering and Bureau of Chemistry and Soils cooperating.)

Nut production investigations.--This work includes experiments on culture and breeding of almonds, walnuts and filberts in the Pacific Coast States; pecans in Texas, Louisiana, Georgia, and other Southern States, and black walnuts, hickories, filberts, and chestnuts in the Central and Northeastern States. These studies are undertaken in order to determine the best procedures for development of domestic nut production throughout the nut-growing regions of the country. (Bureau of Entomology and Bureau of Chemistry and Soils cooperating).

Subtropical fruit production investigations.--Cultural studies are conducted to determine those methods of pruning, fertilization, soil management and other practices which will result in greater yields of higher quality fruit. Citrus, figs, avacados and other subtropical fruits are included in these studies, which are conducted in the Southern border States. These studies have as their object the efficient production of citrus fruits as well as the encouragement of other subtropical fruits. (Bureau of Agricultural Engineering cooperating).

Plant propagation, nursery management and stock storage.--This work is of especial benefit to nurserymen and plant propagators and consists of study of propagation of fruit and rose stocks by seed and by cuttings; testing and selecting stocks for apples, pears and cherries; comparison of rose stocks for outdoor hybrid teas, and greenhouse grafting of roses and certain other ornamentals; storage experiments with nursery stock to determine the most suitable moisture and temperature conditions.

Crop physiology.--These investigations relate particularly to dates, pistache nuts, new citrus hybrids and other new and noncompetitive crops. The purpose of this work is to determine various factors which govern the success or failure of horticultural plants under different soil and climatic conditions with special reference to the accurate determination of such factors in case of new and noncompetitive crops not now grown on a commercial scale in this country. Breeding work is carried on whenever necessary to adapt such new crops to the soil and climatic conditions they must endure in this country. Experiments with dates, pistaches and figs are under way in California, Arizona and Texas, and new hybrids such as the Tangelo (cross of tangerine with grapefruit) and new early ripening Satsuma oranges are under investigation in the Gulf Coast States. (Bureau of Chemistry and Soils, Agricultural Engineering, Entomology, Agricultural Economics, Plant Quarantine, and Bureau of Indian Affairs of Department of Interior cooperating).

Fruit disease investigations.--Investigations are conducted on the fungous, bacterial, virus and physiological diseases of fruits and fruit trees, including citrus and subtropical fruits, grapes, and small fruits, fruit rots and decays, and diseases of the pecan and other nuts, with a view of their control by spraying, disinfection, eradication and other methods, with a view to the protection of fruit and nut growing from serious losses due to diseases. (Bureau of Chemistry and Soils, and Entomology cooperating).

Vegetable production, standardization and improvement.--These investigations include improvement in cultural practices for vegetables throughout the United States, improvement by breeding of superior varieties, production on muck soils, and field tests in cooperation with State Agricultural experiment stations for the purpose of establishing variety standards and variety descriptions to aid the grower in producing high quality commodities in the most economic manner possible. (Office of Experiment Stations, Virgin Islands, cooperating).

Vegetable disease investigations.--Investigations are conducted on the fungous and virus diseases of vegetables to determine their cause, conditions under which they develop, localities where they are most serious, methods of disease transmission and to develop control measures of the maladies which are distributed more or less generally, in order to avert inestimable economic loss and a severely reduced food supply.

Potato investigations.--Experimental work is carried on in different regions with a view to developing through breeding and selection more desirable commercial varieties of potatoes and to improve cultural and storage practices. The work is generally applicable but special experiments are

under way in the following States: Maine, Virginia, Maryland, North Carolina, New York, Louisiana, Michigan, Iowa, Minnesota, North Dakota and Colorado, for the best development of the potato industry. (Bureau of Home Economics and Bureau of Chemistry and Soils cooperating).

Fruit and vegetable handling, transportation and storage investigations.--These studies include experiments to determine the best methods of handling, transportation and storage of fruits and vegetables, including the control of diseases in storage, during transit and on the market; the effect of ethylene and other gases in coloring fruits and vegetables; methods of removing spray residues and investigations on the frozen pack method of preservation. The work is of general interest but more particularly for the regions of large production with extensive shipment and provides the fundamental studies for fruit and vegetable industries, for the improvement of handling, shipping and storing methods, or for other means of improving the quality of the product reaching the consumer. (Bureau of Agricultural Engineering, Bureau of Agricultural Economics, Bureau of Chemistry and Soils and Bureau of Entomology cooperating).

Fruit and vegetable utilization investigations.--These experiments include study of the fundamental factors involved in preservation of food by canning, the value of different varieties with respect to quality of the final product, the study of microbiological problems arising from frozen packing of berries and other fruits, to the fruit producing industries and bring about more effective utilization of the raw material and to facilitate the production and distribution of higher quality material without increased cost. (Bureau of Chemistry and Soils and Bureau of Home Economics cooperating).

Floriculture and landscape gardening.--Studies of adaptability for planting in various regions are made of different varieties of herbaceous and woody ornamental plants, including annuals, perennials, roses and chrysanthemums, together with arrangement of plants and trees for ornamental effect, including their use on farmsteads and roadsides.

Bulb culture.--Experiments with tulips, hyacinths, narcissus and other bulbs are under way with a view to aiding the rapidly developing bulb-growing industry of the United States. The work is of especial interest in the Pacific Northwest, North Carolina and Long Island, N. Y., and the purpose of these studies is to develop reliable methods for the satisfactory production of bulbs in different localities.

Diseases of ornamental plants.--Investigations are conducted on the fungous, virus and physiological diseases of ornamental plants and floral crops to determine the best means of control in order to prevent much individual loss as well as damage to flourishing young industries since these problems receive comparatively little attention from State organizations. (Bureau of Entomology cooperating).

Pathological Laboratory.--The problems dealt with involve laboratory, greenhouse, and field experiments with bacterial diseases of crop and ornamental plants, such as crown gall, perennial apple canker, and bacterial blight of beans and peas, to aid the crop industries in understanding and effectively combating bacterial diseases that are widely distributed in the United States.

Plant physiological laboratory.--The physiological processes in plants are investigated from the physical and biochemical standpoint to furnish fundamental knowledge for work in breeding, increasing production, disease and frost resistance, and in handling and storage and shipping methods, and to supply the understanding of numerous other problems more directly concerned with the maintenance of yield and quality, in the production of fruits and vegetables. (Bureau of Chemistry and Soils cooperating).

Cheyenne Horticultural Field Station.--Experiments under both dry-land and irrigated conditions are conducted with fruits, vegetables, flowers and shelter-belt plants. Fertilizer, pruning, soil management, thinning and pollination studies are conducted as well as breeding investigations for the purpose of developing better varieties resistant to drought and cold; and extensive experiments in shelter-belt plantings are in progress for improving home conditions throughout the Great Plains area.

(o) GARDENS AND GROUNDS

Appropriation, 1932	$98,120
Appropriation, 1933	97,820
Budget Estimate, 1934	87,190
Decrease	10,630

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Gardens and Grounds	$98,020	$97,820	$87,190	$10,630(1)

(1) $10,630 decrease is explained as follows:

(1) $3,300 reduction due to compulsory retirements under Section 204 of the Economy Act; $7,330 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

A range of thrity-two greenhouses is maintained, providing for experimental work with a wide range of plants; the propagation of plants for ornamenting the grounds of the Department, the lighting of the grounds and the removal of refuse from the buildings is provided for in this item. Aside from the routine service activities required for the care of the Department grounds, the greenhouses are operated to furnish necessary experimental facilities to the several appropriation items, particularly those dealing with the diseases of plants caused by bacteria, fungi or nemas. Maintenance of experimental plants for hybridization or other plant breeding or plant physiological studies are also provided for. This service can be maintained more effectively and more economically through this centralized management.

(p) GENETICS AND BIOPHYSICS

Appropriation, 1932	$36,420
Appropriation, 1933	36,220
Budget Estimate, 1934	33,617
Decrease	2,603

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Genetics and Biophysics ...	$36,268	$36,220	$33,617	$2,603 (1)

(1) $2,603 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

Field and laboratory investigations are conducted with various plants to determine principles and mechanism of inheritance and the influence of physical conditions upon growth and reproduction, with particular reference to those physical investigations involving application of electric current to growing plants, alteration of soil atmosphere by means of various gases, and the effect of permanent and temporary mulches on plant growth. The results of these investigations are contributions to our knowledge of inheritance which are essential for the more practical plant breeding activities.

(q) MYCOLOGY AND DISEASE SURVEY

Appropriation, 1932	$59,960
Appropriation, 1933	50,000
Budget Estimate, 1934	46,133
Decrease	3,867

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Epidemiology and Disease Survey.	$30,607	$26,132	$26,132	- - -
Mycological Collections	22,327	18,768	18,768	- - -
Mushroom Investigations	5,990	5,100	5,100	- - -
Legislative furlough deduction..	- - -	- - -	- 3,867	$3,867 (1)
Total	58,924	50,000	46,133	3,867

(1) $3,867 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The work under this appropriation includes the collection of plant parasites and other fungi, surveys of plant diseases in the United States, and investigations on the culture and diseases of mushrooms.

Mycological collections.--Work under this project consists of maintenance of collections of specimens of plant parasites and other fungi having relation to injury or destruction of economic plants and plant products, their identification, and preservation for technical study and reference purposes. The herbarium maintained under this project serves as a repository

for fungus material on which the pathological work of other divisions of the Bureau of Plant Industry has been based and the project functions as a service unit for the pathological workers of these divisions as well as those of the various state stations.

Epidemiology and disease survey.--Work under this project consists of surveys to determine the geographic distribution, prevalence, and rate of spread of plant diseases in the United States and losses caused by disease, as well as the appearance of new or dangerous diseases and epidemics or unusual outbreaks of disease. Files are maintained in which the information thus accumulated is always available and, in cooperation with the Mycological Collections project, files for plant disease literature of the world are maintained. This project also collects current information on the status of plant diseases throughout the United States and, by means of a mimeographed periodical, distributes this information to pathologists in this country and abroad.

Mushroom culture and diseases.--Work under this project consists of investigations of the etiology and control of mushroom diseases, particularly the truffle and Mycogone diseases and related problems of mushroom culture. Mushrooms are grown to a greater or less extent in every state in the Union with the possible exception of a few of the more southern ones, and the diseases are equally widespread. The truffle disease which is now causing the most concern to the industry was first found and studied in Ohio but is now known from Ohio, Pennsylvania, New York, Maryland, Illinois, Minnesota and Colorado. (Bureau of Entomology cooperating).

(r) NATIONAL ARBORETUM

Appropriation, 1932	$30,000
Appropriation, 1933	5,000
Budget Estimate, 1934	4,758
Decrease	242

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	decrease
National Arboretum	$2,151	$5,000	$4,758	$ 242 (1)

(1) $242 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

This item is for development of the arboretum established in the District of Columbia under the Act of March 4, 1927. Active development of the Arboretum has been postponed for the time being, the funds being used merely for protecting the property and for the minimum of maintenance of the tract of land.

(s) NEMATOLOGY

Appropriation, 1932	$58,360
Appropriation, 1933	50,000
Budget Estimate, 1934	46,640
Decrease	3,360

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Nemas parasitic on plants	$49,291	$42,500	$42,500	- -
Nemas parasitic on insects	4,300	7,500	7,500	- -
Legislative furlough deduction	- -	- -	-3,360	3,360 (1)
Total	53,591	50,000	46,640	3,360

(1) $3,360 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

These investigations deal primarily with the minute eelworms or nemas, certain species of which infest important crop plants and seriously injure them, whereas other species have been found to be beneficial, destroying insects or other species of the injurious nemas. A field laboratory is maintained at Salt Lake City, Utah.

Nemas parasitic on plants.--Under this project various kinds of nemic plant pests are studied to determine methods for their control and the relation of other nemas to plant life and soil fertility, including: (1) The root-knot nema, known to attack about 800 different plant species, including most of the important crop and horticultural plants and known to inflict heavy losses in some regions, to vegetable, root and orchard crops, cotton and tobacco; it is also a dreaded greenhouse pest everywhere; (2) The bulb or stem nema, an exceedingly troublesome pest on some 200 plants, mostly horticultural and crop, (alfalfa, clover, oats, sweet potatoes, onions, narcissus, etc.); (3) The sugar-beet nema; (4) Various strawberry nemas; (5) The citrus nema; (6) The wheat nema and many related forms.

Nemas parasitic on insects.--Through these studies the fact was established that certain nemas that are parasitic on insects may have a beneficial effect on crop production where present in large numbers, as they control or reduce numerous insect pests (grasshoppers, ants, sugar cane borer, gypsy moth, alfalfa weevil, etc.). Surveys seem to show that the absence of serious grasshopper outbreaks east of the dry Rocky Mountain region is largely due to these parasites, which because of climatic conditions fail to live in regions where grasshoppers are a recurrent plague. Other nemas attacking the Japanese beetle, the cucumber bark beetles, etc. look promising as efficient factors of control. Experiments with insect-infesting nemas are under way to determine their economic significance and of their application in the control of insect pests.

(t) PHONY PEACH ERADICATION

Appropriation, 1932	$85,000
Appropriation, 1933	50,000
Budget Estimate, 1934	41,860
Decrease	8,140

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Phony Peach Eradication	$77,706	$50,000	$41,860	$8,140 (1)

(1) The decrease of $8,140 is explained as follows:

(a) The reduction of $5,000 will be met by discontinuing the services of 3 cooperative agents in approximately that amount of salaries.

(b) $3,140 reduction on account of continuation of legislative furlough.

While the decrease will necessitate some curtailment of the program of work on this project, it is believed that the more important phases of the activity can be continued.

WORK UNDER THIS APPROPRIATION

In cooperation with the State Board of Entomology of Georgia, the Bureau conducts a campaign for the eradication of the phony disease of peaches, an infectious virus confined to the root system resulting in dwarfed growth of the tree and abnormally small and poorly flavored fruit. Incidental inspections are made in other States where the disease has been found to occur sparingly. These infected trees are being removed by the State authorities. Under informal cooperation preliminary surveys of peach areas are under way in these States where infections have been found. Scattered infections have been found in additional States so that the work now applies to the States of Alabama, Arkansas, Florida, Illinois, Louisiana, Mississippi, Missouri, North Carolina, Tennessee, Oklahoma, South Carolina, and Texas.

(u) PLANT NUTRITION

Appropriation, 1932	$18,050
Appropriation, 1933	18,050
Budget Estimate, 1934	16,900
Decrease	1,150

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Plant nutrition including study of the effect of length of daylight on plant growth	$17,764	$18,050	$16,900	$1,150 (1)

(1) $1,150 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

In the field management of the tobacco crop the great variation in influence of certain crops on both yield and quality in the crop rotation system is particularly important. Plant nutrition investigations are directed toward the determination of the extent and significance of the influence of these variations, particularly on yield and quality of crops included in the rotation, and include the inter-relation of crops other than tobacco and the relative plant food requirements both of the tobacco and the crops which may be grown in rotation with it.

Studies are also made of the effect of length of day on growth, development and composition of plants including effects of daily duration, intensity and color or composition of the light; (influence of certain crops on other crops following in the rotation; and the plant food elements and the relative plant-food requirements of crops commonly grown in rotation). The work is carried on with the same personnel as Tobacco Investigations.

(v) RUBBER, FIBER AND OTHER TROPICAL PLANTS

Appropriation, 1932	$140,463
Appropriation, 1933	75,000
Budget Estimate, 1934	69,474
Decrease	5,526

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Acclimatization and adaptation of Crops from Tropical Regions	$45,416	$30,916	$30,916	- - -
Rubber Production Investigations	55,378	23,026	23,026	- - -
Fiber Investigations	31,272	21,058	21,058	- - -
Legislative furlough deduction.	- - -	- - -	- 5,526	5,526 (1)
Total	132,066	75,000	69,474	5,526

(1) $5,526 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The work under this appropriation consists chiefly of acclimatization and adaptation of crops from tropical regions, rubber production investigations and fiber production investigations. Field experiments are carried on at the stations maintained under the item for Cotton Production and Diseases, and cooperative experiments are located at the State agricultural experiment stations.

Acclimatization, adaptation and breeding of crop-plants from tropical regions.--Investigations under this project are directed to problems of further utilization of crop-plants of tropical origin, through acclimatization and adaptation to conditions in the United States. The agriculture of the United States is based extensively on plants from tropical countries, as

Many other tropical fruits, vegetables and other plant products are believed to be capable of more extensive utilization in the southern and southwestern States if suitable varieties and cultural methods are developed. (Bureau of Indian Affairs and Reclamation Service cooperating).

Rubber production investigations.--Under this project problems of rubber production are being investigated in relation to plants that can be grown in the United States and in the Canal Zone, or in adjacent countries of tropical America, to provide new crops for the United States and lessen the danger of complete dependence on remote sources of supply in the East Indies. Native and foreign species of rubber-producing plants are being investigated and tested in Florida, Texas, New Mexico, Arizona and California. The Hevea rubber tree of Brazil, the same that is cultivated extensively in the East Indies, is found to grow well in southern Florida. The present low prices of rubber, by tending to develop many new uses, are increasing the danger of dependence on foreign supplies, and render it the more necessary to determine the feasibility of establishing a producing industry or reverse supplies of rubber in the United States or in adjacent countries of tropical America. (Reclamation Service, Rubber Division of Commerce Department, Canal Zone Government, War Department, and Bureau of Standards cooperating).

Fiber plant investigations.--Work under this project includes the investigation of hemp and flax fiber production in the United States and of hard fibers such as abaca (Manila hemp), maguey, sisal, and henequen in the tropics; and all plant fibers, except cotton, used for ropes, twines, yarns, woven fabrics, hats, matting, and stuffing or filling. Owing to reduction of funds, field work in the Philippines, Panama, and Puerto Rico has been discontinued for the fiscal year 1933. Field experiments with hemp are carried on at Arlington Farm and in cooperation with the State Experiment Stations in Virginia and Wisconsin. Experiments with Fiber Flax are carried on in cooperation with the Oregon Agricultural Experiment Station.

(w) SEED INVESTIGATIONS

Appropriation, 1932	$78,220
Appropriation, 1933	75,500
Budget Estimate, 1934	70,648
Decrease	4,852

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Seed Testing	$48,031	$44,510	$44,510	- -
Federal Seed Act	25,834	30,740	30,740	- -
International Seed Testing Congress	250	250	250	- -
Legislative furlough deduction	- -	- -	-4,852	$4,852 (1)
Total	74,145	75,500	70,648	4,852

(1) $4,852 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The work under this appropriation consists chiefly of research and advice on the problems connected with the quality and germination of field seeds. Cooperative seed testing laboratories are maintained at Sacramento, Calif; LaFayette, Ind; Columbia, Mo; and Corvallis, Ore.

Seed testing.--Under this project an advisory service is maintained for farmers, seedsmen and others interested in seed quality, based upon seed samples tested to determine the proportion of pure seeds present, the kind and proportion of weed seeds, the germination of the pure seed, and region of production for insuring to farmers that the seed to be planted is pure and of good quality.

Federal seed act.--The Federal Seed Act is enforced under this project, requiring the sampling and testing of all field seeds offered for entry to determine fitness for entry into the United States, the supervision of coloring of alfalfa and red clover of foreign origin, and cooperation with State agencies to determine whether any seed shipped in interstate commerce is fraudulently misbranded. This work is required by law to prevent the planting of seed unadapted to this country.

International seed testing congress.--Under this project participation in the International Seed Testing Congress on the part of the United States is authorized to the extent of $250. The Seed Testing Congress is endeavoring to set up international rules for testing seed to insure uniformity.

(x) SUGAR PLANT INVESTIGATIONS

Appropriation, 1932	$413,700
Appropriation, 1933	385,462
Budget Estimate, 1934	348,409
Decrease	37,053

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Sugar Cane Investigations	$121,638	$120,222	$115,000	$ 5,222(1)
Sugar Beet Investigations	269,917	265,240	255,000	10,240(2)
Legislative furlough deduction	- -	- -	-21,591	21,591(3)
Total	391,555	385,462	348,409	37,053

The reduction of $37,053 is explained as follows:

(1) $5,222 decrease under Sugar Cane Investigations to be effected by a reduction in seasonal labor and general reduction in expenditures.

(2) $10,240 decrease under Sugar Beet Investigations to be effected by a reduction in seasonal labor and general reduction in expenditures.

(3) $21,591 reduction on account of continuation of legislative furlough.

While the decrease will necessitate some curtailment of the program of work on the projects above indicated, it is believed that the more important phases of these activities can be continued.

WORK UNDER THIS APPROPRIATION

The work under this appropriation consists chiefly of research on the problems connected with the growing of sugar cane and sugar beets in the United States, including the control of diseases affecting these crops.

Sugar cane investigations.--Under this project investigations include the study of sugar cane diseases, development of methods for their control, breeding and testing of new varieties of cane for the purpose of developing varieties better adapted to conditions in this country as well as resistant to diseases and capable of furnishing better yields in Louisiana, Florida, and other Southern States, and Puerto Rico. The sugar cane industry is particularly interested in the investigations on field methods of controlling diseases and in the increase of seed supplies of disease-resistant varieties of sugar cane. (Puerto Rican Agricultural Experiment Station cooperating).

Sugar beet investigations.--Under this project superior yielding varieties are being developed, strains resistant to disease are selected for increase, types of beets better adapted to conditions in this country are produced, experiments involving comparative studies of cultural practices are performed, and special methods for the control of curly-top and other serious diseases, including special investigations in cooperation with the Bureau of Entomology for the control of the curly-top disease of sugar beets caused by the leafhopper. The sugar beet industry is particularly interested in the investigations on field methods of controlling diseases and in the increase of seed supplies of disease-resistant sugar beets.

Field stations and laboratories are maintained at the following points:

Canal Point, Florida	Salt Lake City, Utah
Cairo, Georgia	Riverside, California
Houma, Louisiana	Fort Collins, Colorado
Guayama, Puerto Rico	Rocky Ford, Colorado
Twin Falls, Idaho	

(y) TOBACCO INVESTIGATIONS

Appropriation, 1932.....	$91,000
Appropriation, 1933.....	90,600
Budget Estimate, 1934.....	82,403
Decrease.....	8,197

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Tobacco Investigations.....	$90,036	$90,600	$82,403	$8,197

(1) $8,197 decrease is explained as follows:

$2,600 reduction due to compulsory retirement under section 204 of the Economy Act; $5,597 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

Tobacco investigations include all phases of growing, curing and handling tobacco, with the exception of tobacco insects and their control. The work consists of studies on tobacco diseases and their control, laboratory research on causes of poor quality in leaf tobacco and field investigations in the improvement of methods of fertilization, growing, curing, and handling the different types of leaf as each distinctive type of tobacco presents special cultural problems, in order to avoid heavy and erratic losses in the tobacco industry.

Cooperative experiments are carried on at the Agricultural experiment stations of tobacco growing States, namely, Connecticut, Florida, Georgia, Maryland, Massachusetts, North Carolina, Pennsylvania, South Carolina, Tennessee, Virginia, West Virginia, and Wisconsin, but no independent field stations are maintained.

(z) WESTERN IRRIGATION AGRICULTURE

Appropriation 1932:		
1. Agricultural Act	$153,940	
2. 2nd Def. Act, 1931-1932 (For relocating and equipping Hermiston, Oregon, Field Station - balance of $35,000.	33,935	
Total appropriation, 1932		$187,875
Appropriation, 1933		147,950
Budget Estimate, 1934		131,655
Decrease		16,295

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease	
Agronomic investigations on irrigation projects.....	$141,147	$106,030	$103,300	$2,730	(1)
Boron Investigations.....	35,119	37,000	35,200	1,800	(2)
Irrigation and Ground Water Investigations.....	5,042	4,920	1,500	3,420	(3)
Legislative furlough deduction	---	---	-8,345	8,345	(4)
Total	181,308	147,950	131,655	16,295	

The reduction of $16,295 is explained as follows:

(1) $2,730 decrease under Agronomic Investigations on Irrigation Projects to be effected by a general reduction in travel and other expenditures.

(2) $1,800 decrease under Boron Investigations to be effected by a general reduction in travel and other expenditures.

(3) $8,345 reduction on account of continuation of legislative furlough.

(3) $3,420 decrease under Irrigation and Ground Water Investigations is to be effected by a general reduction in travel and other expenditures.

While the decrease will necessitate some curtailment of the program of work on the projects above indicated, it is believed that the more important phases of these activities can be continued.

WORK UNDER THIS APPROPRIATION

Under this appropriation the agricultural conditions in the arid and semi-arid regions of the Western United States are studied to determine the crops, rotations, and cropping methods best suited to successful irrigation farming in those regions. Field stations are maintained at the following points: Phoenix, Ariz., Bard, Calif., Huntley, Mont., Mitchell, Neb., Fallon, Nev., Hermiston, Ore., Newell, S. D., Prosser, Wash.

Agronomic investigations on irrigation projects.--In cooperation with the Reclamation Bureau of the Department of the Interior and the experiment stations of the States concerned, field experiments are carried on to determine methods of improving conditions of crop production under irrigation for the benefit of the settlers on the reclamation projects. These investigations bear directly on some of the fundamental problems of crop production and crop utilization on the irrigated lands of the Western United States. There is a steadily increasing dependence on experimental work of this character on the part of farmers in the irrigated regions and on the irrigation projects. (Bureau of Animal Industry, Bureau of Dairy Industry, Bureau of Chemistry & Soils and Bureau of Agricultural Engineering cooperating).

Boron investigations.--Work under this project consists of investigations relating to injury caused by boron found in irrigation water supplies of central and southern California, and in western Nevada, seriously affecting citrus and deciduous orchards as well as several of the important field crops, and impairing the productivity of these lands. These investigations are making it possible to find the sources of boron contamination in irrigation supplies and thus in some cases to eliminate crop injury from that cause. Interest in these investigations is very keen, particularly in California.

Irrigation and ground water investigations.--Work under this project consists of analysis of water used for irrigation and recovered by drainage in order to anticipate the danger of crop injury and to determine the effectiveness of drainage works in prevention of salt accumulation in irrigated lands. These investigations are being conducted on three large irrigation projects, the El Paso, Yuma, and Imperial Valley, and in the South Coastal Basin in California. The results of the salt balance studies on the three projects named are being directly used by the project managers in the operation of their projects. The investigation in the South Coastal Basin bears directly on the operations of the various organizations of irrigation farmers in that area who are utilizing and replenishing the underground storage of irrigation water.

Limitation on Purchase of Passenger Carrying Vehicles

The language authorizing and limiting the expenditure for purchase of passenger carrying vehicles is submitted in connection with the total for the bureau in order to provide for consideration of this item at the same time the general estimates of the bureau are under consideration. The purchase authorization of the bureau from the general Departmental authorization for 1933 is $21,650. The authorization for 1934, $13,200 therefore constitutes a reduction of $8,450.

FOREST SERVICE

(a) GENERAL ADMINISTRATIVE EXPENSES

Appropriation, 1932	$370,640
Appropriation, 1933	352.580
Budget Estimate, 1934	327,819
Decrease	24,761

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Increase
General Administration	$357,640	$352,580	$327,819	$24,761 (1)

(1) $24,761 decrease is explained as follows:

(a) Apparent increase of $559 by transfer from "Salaries Office of the Secretary", which has been correspondingly reduced, as pro rata of supply handling charges for 1934.

(b) $25,320 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

This appropriation provides salaries and expenses of employees in the Washington office engaged on general administrative and service-wide subtechnical activities pertaining to the national forests and other general service activities.

The number of employees in the Washington office, paid from this and comparable appropriations, has been reduced from 225 in 1920 to 197 in 1932. During this time the volume of work has increased because of larger appropriations. The Forest Service has long recognized the fact that the number of employees and the amount expended in its central office should be held to an absolute minimum.

(b) PROTECTION AND ADMINISTRATION, NATIONAL FORESTS

Appropriation, 1932	$7,289,240
Appropriation, 1932	7,131,244
Budget Estimate, 1934	6,568,880
Decrease	562,364

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Fire Prevention.....	$2,173,320	$2,150,666	$2,111,562	$ 39,104
Fire Suppression.....	294,000	294,000	288,561	5,439
Construction of Improvements	729,575	709,000	695,884	13,116
Maintenance of Improvements	594,000	574,000	563,381	10,619
Timber Sales.....	873,600	792,000	777,348	14,652
Development of For. Practice	73,000	68,000	66,742	1,258
Timber Survey.....	156,000	146,000	143,299	2,701
Planting.....	69,000	64,000	62,816	1,184
Free Use of Timber.....	22,000	22,000	21,593	407
Tree Diseases and Insects.....	354,000(a)	395,000	387,692	7,308
Administrative Investigations	68,000	63,000	61,835	1,165
Grazing Administration.....	1,032,200	999,000	980,518	18,482
Range Reconnaissance.....	49,800	45,000	44,168	832
Fish and Game.....	143,000	138,000	135,447	2,553
Land Adjustments.....	101,223	92,578	90,865	1,713
Land Exchange & Acquisition...	111,600	112,000	109,928	2,072
Special Uses.....	207,700	208,000	204,152	3,848
General Surveys and Maps.....	184,000	174,000	170,781	3,219
Control Recreation Areas.....	84,400	85,000	83,428	1,572
Legislative furlough deduction	- - -	- - -	431,120	431,120
Total.....	7,320,418(a)	7,131,244(b)	6,568,880	562,364(1)

(a) Inclusive of $150,000 in 1931 deficiency appropriation for Blister Rust control and exclusive of $45,000 for Blister Rust control in 1932 appropriation expended in 1931 under immediately available provision.

(b) Inclusive of $9,000 transferred to Research in Forest Management for completing those phases of foreign forestry research work begun in 1931 and 1932.

(1) The reduction is explained as follows:

(a) A reduction of $131,244 has been uniformly distributed to all projects since it will affect all of them approximately proportionately. The decrease to be effected will be made by a general reduction in all projects under this appropriation for expenditures for temporary labor, supplies and equipment, travel expenses, transportation of things, furnishing of heat, light, and power, and repairs to equipment.

(b) $431,120 reduction on account of continuation of legislative furlough.

CHANGE IN LANGUAGE

It is recommended that the amount of the authorization for caring for fire fighters graves in national forest region 1 be changed from $500 to $200, since the amount needed for the fiscal year 1934 is only for the care of graves. It is also recommended that the following language be omitted since the work authorized will have been performed in the fiscal year 1933:

<u>",and in removing the remains of fire fighters to the cemeteries at Newport, Washington; and/or Saint Maries, Idaho".</u>

WORK UNDER THIS APPROPRIATION

This appropriation is used for the general operating expenses of the National Forests and National Forest Regional Offices, including the following items:

(1) Salaries and travel expenses for the men in charge of the various units or organization such as National Forest Regions, National Forests, and Ranger Districts. There are now nine National Forest Regions, 140 National Forests and 700 Ranger districts. These men direct the administrative, protective and improvement activities carried on in the units for which they individually are responsible and during the course of a year will devote varying portions of their time to practically all of the projects listed. For some of the projects worked on and supervised there are special appropriations, but the salaries and, except under certain special conditions, the travel expenses of the men in charge of administrative units are paid entirely from this appropriation. It would be impossible to exert financial control over the many general and special appropriations if an attempt were made to pay the salaries and expenses of men in charge of physical units from special appropriations in proportion to the varying amounts of time spent on the different projects. This method of financial management accounts for a large part of the charges from this appropriation to projects for which there are special appropriations.

(2) Salaries and expenses of the assistants to these supervisory officers including the salaries of clerical employees. Exceptions are that when such an assistant or clerk is wholly employed on an activity such as tree planting or road construction, for which a special appropriation is available, his salary and any necessary travel expenses are paid from the special appropriation; also when the time of an assistant is divided between work for which there is no special appropriation and work for which there is a special appropriation in a way which calls for adjustment as a matter of law and fairness between appropriations, the cost of his time and travel expense, if any, is so divided.

(3) Salaries of fire guards, scalers and other short-term employees engaged on work for which there is no special appropriation. 3,300 fire guards are employed as required by the fire danger in each locality. Periods of employment vary from one to six months and average about three months.

When such work as building or fence construction is needed at the station of a fire guard he is employed on such work if arrangements can be made so that he can be called by telephone when a fire is discovered. Also, if periods of wet weather occur during the fire season, fire guards are used so far as possible on any other work needed, such as improvement work of all kinds. In both of such instances the guard is paid from the special appropriation if funds are available. If the special appropriation concerned is exhausted the guard is nevertheless used on the special work as a matter of good business management, but his wages are paid from the Protection and Administration Appropriation which is used while the man is required for straight fire duty.

(4) Fire Protection equipment is purchased from this appropriation to the extent that funds can be made available therefrom.

(5) Miscellaneous costs of operation, such as rent of offices, telephone and telegraph tolls, freight, express, supplies and equipment not provided by special appropriations.

The activities provided for wholly out of this appropriation include the following:

Fire prevention
Timber sales
Development of forestry practice
Free use of timber
Tree diseases and insects
Grazing administration
Fish and game
Special uses
General surveys and maps
Control of recreational areas

The activities listed in the project statement for this appropriation for which there are also special appropriations, are given below:

Fire suppression
Construction of improvements
Maintenance of improvements
Timber surveys
Planting
Administrative investigations
Range reconnaissance
Land adjustments
Land exchange and acquisition

Although expenditures are shown on a project basis for this appropriation in setting up allotments, provisions must first be made for the salaries and expenses of men in charge of physical units, such as ranger districts, national forests and national forest regions, and for their year long assistants. The term "expenses" as used above includes such items as rental of headquarters, telephone and telegraph, travel expenses, freight and express, supplies and equipment not provided by special appropriations, etc. These allotments for the basic organization of the Forest Service take up by far the greater portion of the appropriation. There are not many specialists, or men who ordinarily work on a single activity in this group, and these few are always used on other work if not needed, temporarily, in their special activity. The charges to the projects listed above represent, to a large extent, a distribution of the time of this group of employees and a proration of the expenses enumerated above.

During the past five years the Forest Service has been revamping the basic organization for the purpose of providing funds for additional fire guards and scalers to more adequately protect the national forests from fire and administer an increasing timber sale business (now temporarily far below normal in activity). In reorganizing the force, an attempt has been made to equalize the load carried by Rangers and Supervisors throughout the Service and this has resulted in the consolidation of many ranger districts and a number of forests.

Provision is also made in this appropriation for the salaries and expenses of men engaged on specific tasks, such as fire, insect and blister rust control, timber sales and supervision of recreational areas. The four projects involved are Fire Prevention, Commercial Timber Sales, Tree Diseases and Insects, and Control of Recreational Areas, and justifications for continuance of these projects are given below:

Fire prevention

A force of approximately 3,300 men is employed for an average period of three months during the fire season for fire prevention purposes. This project must be continued if protection of these public properties is to be maintained. The maintenance of an adequate fire control force during the period of depression is of paramount importance because of the marked increase in the number of incendiary fires which are started in the hope of providing work for the incendiarists. During 1933 the Forest Service is making every effort to maintain this organization at its 1932 level. This means that the substantial reduction which was made in this appropriation in 1933 will have to be taken out of other activities.

Commercial timber sales

On large timber sales, men are employed solely for the purpose of scaling and marking timber and to administer the sales. The timber sale business on the national forests decreased in 1932 about in proportion with the diminished rate of lumber production throughout the country, and is sure to increase with the general revival of business activities. As it is, there has been no complete shutting down of all going operations. Many operators have continued to cut, but at a lower rate, under existing long-term contracts. On such sales the forest officers in charge of the sale must remain on the ground, and on large sales, also a number of scalers. The reduction has been greatest on the west coast where the unit cost of sale administration has been lowest. A large part of the reduction in appropriation for 1933 will be met from this activity.

Tree diseases and insects

Separate allotments are set up for project work on this activity. The importance of blister rust and insect control work is evidenced by the fact that during 1931 and 1932 deficiency appropriations were requested for this activity. The 1933 Appropriation Act provides for the continuance of the blister rust control work on a scale even larger than that maintained in 1932, during which year a deficiency appropriation of $150,000 was made. The protection of Government property, for the public good, makes appropriations necessary for both these projects.

Full advantage is taken, in this work, of the economy methods developed by the research and experiment work of the Bureau of Plant Industry.

Control of Recreational Areas

A few men are employed during the tourist season to enforce fire and sanitary regulations on some of the larger camp grounds on the national forests. The number of tourists visiting national forests is increasing

rapidly and it will be necessary as time goes on to increase the number of such men. The depression has served to increase the number of campers on national forest lands to a marked degree and it has not been possible to reduce the force of men stationed at these camps. However, the greater portion of the charges to this project, as shown on the project statement above, represents the time of rangers and forest guards spent in supervising and cleaning up camp grounds incidental to their other work. The number of men employed primarily for the purpose of supervising camp grounds is small.

(c) FIGHTING FOREST FIRES

Appropriation, 1932	$4,360,000*
Appropriation, 1933	100,000
Budget Estimate, 1934	100,000

*Includes $4,260,000 deficiency appropriation

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Fire Suppression	$4,064,103(a)	$33,000	$ 33,000	--
Protection of Lands, Railroad Forfeiture Suits	87,259	67,000	67,000	--
Total	4,151,362(a)	100,000	100,000	--

(a) Exclusive of $100,000 in 1932 appropriation expended in 1931 under immediate available provision.

WORK UNDER THIS APPROPRIATION

This appropriation is used primarily for the suppression of forest fires, with the exception of the amount required to give the lands known as the Coos Bay Wagon Road and Oregon and California railroad lands the same protection from fire which is given adjacent national forest or privately owned lands protected by associations of private owners. Otherwise administrative restrictions placed upon the use of the appropriation by the Forest Service provide that expenditures shall not be made from it until forest fires have actually started. An exception is made to this rule, however, when fire conditions become so critical that the regular protective organization, which is financed from "Protection and Administration, National Forests", is unable to cope with the situation and when, therefore, the temporary employment of additional guards will reduce expenditures for fire fighting. Expenditures are made for the employment of fire fighters and their transportation, equipment needed on going fires when not available in stocks of equipment previously purchased from the Protection and Administration appropriation or in connection with fires of previous years. The appropriation is used for travel expenses of forest guards when going to or returning from fires and for the travel expenses of regular employees of the Service when the travel performed extends beyond the boundaries of the units to which they are regularly assigned or when the activities to which men are assigned do not include fire fighting.

The amount given in the appropriation act is nominal because it is impossible to predict in advance what the expenditures for such an uncertain activity may be. Supplemental estimates are submitted each year for the Deficiency Bill to cover expenditures in excess of the amount appropriated in the regular appropriation act.

(d) AERIAL FIRE CONTROL

Appropriation, 1932.....	$50,000
Appropriation, 1933.....	25,000
Budget Estimate, 1934.....	24,900
Decrease.....	100

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Aerial detection and reconnaissance of forest fires....	$26,500	$25,000	$24,900	$100 (1)

(1) $100 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

This appropriation is used to operate aircraft in California, Oregon, Washington, Idaho, Montana, Michigan, Minnesota, and Arkansas in forest fire protection work. Beginning with the fiscal year 1929 this activity was carried on by contracting with commercial flyers instead of in cooperation with the War Department. The Forest Service has used aircraft in protection work for thirteen seasons. It was at first believed air patrol would afford quicker detection of fires than could be secured by lookout men on towers and mountain peaks. Experience has disproved this as a general proposition. Nor is it surprising that relatively few reports of fires have come from the aircraft, since any one locality is under observation only a short time during the twenty-four hours even if two or three patrols are made daily. Continuous observation of the terrain, such as lookout men on towers and mountain peaks have if intervening topography does not cut off a great part of their view, is essential to effective fire control.

The use of airplanes after lightning storms to search out smoldering fires which might be hidden from ground lookouts by intervening ridges has as yet given disappointing results but the possibilities of this use of aircraft have not been exhausted.

(e) CLASSIFICATION OF LANDS

Appropriation, 1932.....	$ 58,980
Appropriation, 1933.....	52,770
Budget Estimate, 1934.....	47,250
Decrease.....	5,520

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Classification of National Forest Lands, Location, Survey and Appraisal of Lands to be acquired by exchange and Entry Survey of Forest Homesteads.....	$46,480	$52,770	$47,250	$5,520(1)

(1) The Decrease of $5,520 is explained as follows:

(a)$2,770 Due to the reduced demand for national forest stumpage some falling off in offers of large areas of cut-over land in exchange for national forest stumpage is anticipated, and the number of temporary employees required in connection with the examination, cruise and appraisal of such lands can be correspondingly reduced.
(b) $2,750 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The classification of national forest lands under the provisions of the acts of June 11, 1906 (34 Stat. 233), and of August 10, 1912 (27 Stat. 287), now a minor activity but subject to possible revival; (2) the examination, cruise, appraisal, survey, etc., of private lands within the national forests offered in exchange under the act of March 20, 1922 (42 Stat. 465), and the many other acts amendatory thereof or supplemental thereto, and of the national forest lands or stumpage selected in exchange therefor, and (3) the metes-and-bounds surveys of areas listed for entry under the Forest Homestead Act of June 11, 1906, and acts amendatory thereof.

There are now fifty-six Acts of Congress which in either limited or general degree authorize exchanges of national forest land and/or stumpage for privately-owned lands chiefly valuable for national forest purposes. Under these acts, up to June 30, 1932, 830 exchanges have been consummated, through which the United States secured title to 1,205,100 acres valued at $4,773,519 and granted in exchange therefor 390,415 acres valued at $1,795,099 and 858,268 M.B.F. of stumpage valued at $2,377,820. During the fiscal year 1932, the number of exchanges consummated was 135, the area of offered land 198,913 acres valued at $617,000, the selected land 100,081 acres valued at $266,266, the volume of selected stumpage 86,556 M.B.F. valued at $279,831.

(f) SANITATION AND FIRE PREVENTION

Appropriation, 1932.....	$67,000
Appropriation, 1933.....	67,000
Budget Estimate, 1934.....	66,096
Decrease.....	904

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	decrease
Construction and maintenance of Sanitary Facilities and for Fire Prevention on Public Camp Grounds.....	$27,000(a)	$67,000	$66,096	$904

(a) Exclusive of $40,000 in 1932 appropriation expended in 1931 under immediately available provision.
(1) $904 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

This appropriation is used for the purpose of clearing or otherwise preparing areas required as public camp grounds, and to install thereon simple water, sanitary and fire control facilities with a view (a) of concentrating campers upon areas of low sanitary and fire hazard, (b) preventing the occurrence of unsanitary conditions and (c) minimizing risk of fire damage to national forest timber. Appropriation is prorated between the nine national forest regions in the same proportion as the estimated cost of the regional program bears to total cost. Appropriation expended exclusively for materials and labor, no part being used for salaries or overhead.

During calendar year 1931, the number of people who used the national forests for recreational purposes was estimated to be 32,228,600, e.g., Special Use permittees and guests 496,566; hotel and resort guests 1,618,460; campers 2,193,866; picnickers 3,765,025 and transient motorists 24,154,696. This represents a slight increase over the preceding year and a ten-fold increase over 1917 when the first systematic estimates of recreational use were made. This enormous use of national forests is not only of outstanding social importance and advantage but it is also the basis of an extensive commercial development, creating markets for services and supplies, which are of nation-wide significance.

It does, however, create hazards to public property and health. Such hazards can effectively be minimized or eliminated by provision of adequate camp grounds affording simple facilities for the control of fire and for good sanitation. The chief purpose of the camp grounds is a protective one; the concentration of risks upon areas where they can be controlled or guarded against. The protective value of camp grounds has repeatedly been demonstrated in the experience of not only the Forest Service but of other protective agencies. To provide these people adequate camping facilities, which will minimize hazards to public health and fire risks, about 2,000 areas have been recognized and designated as public camp grounds. Upon 1,800 of these camp grounds some facilities have been established, principally toilets, garbage pits, sources of water supply, fire places, etc. Public interest demands a rapid rate of progress in the equipment of these camp grounds. While primarily important as safeguards to public health and property they also secure greater realization of the public services and values of the national forests and stimulate the commercial development of the regions of which they are parts.

(g) PLANTING ON THE NATIONAL FORESTS

Appropriation 1932	$250,000
Appropriation, 1933	154,200
Budget Estimate, 1934.....	274,870
Increase.....	120,670

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Increase
Reforestation by planting of National Forest Areas and investigations of planting and nursery problems	$246,500	$154,200	$274,870	$120,670(1)

(1) The Increase of $120,670 is explained as follows:

(a) An increase of $125,800 is necessary because of (1) work deferred in 1933 but which can no longer be deferred without losing the investment already made in growing nursery stock and (2) the urgent need for the development of the planting activity on national forests as authorized by the Act of June 9, 1930, especially east of the Great Plains.

(b) $5,130 reduction on account of continuation of legislative furlough.

Section 1 of the Act of June 9, 1930 authorized the Secretary "to establish forest tree nurseries and do all other things needful in preparation for planting on national forests on the scale possible under the appropriations authorized by this act." Under this authorization nursery capacity was increased and the necessary steps taken to make the planting stock available when needed. It requires from two to five years to produce trees of proper planting size from seed. As the result of the reduction in last year's appropriation it was necessary to carry over a large amount of stock in the nurseries which should have been planted in 1933. These trees can still be used if planted in 1934 but cannot be carried over another year since they will be too large to handle economically, will have poor form due to crowding in the seed or transplant beds and cannot be lifted from the ground without serious injury to the root system. These held-over trees already represent an investment of from $2.00 to $4.00 per thousand. The minimum amount of money which will maintain our present nurseries and provide for planting this carried-over stock together with the stock produced in 1934 is $280,000. More than 2,000,000 acres of national forest land need to be planted, and of this 500,000 acres are in the Lake States and 180,000 acres in the East and Southeast.

The nursery enlargements and the planned larger scale planting operation under the authorizations cited are in these regions, where accessibility to markets, cheaper planting, rapid growth and need for the reestablishment of a forest cover on denuded lands for timber production and/or watershed protection make planting on an increased scale most urgent.

WORK UNDER THIS APPROPRIATION

Planting on the national forests is resorted to only where it is not possible to obtain regeneration naturally. In sales of national forest timber provision is made for natural regeneration through the reservation of seed tree

Where fires have repeatedly burned over areas there is nothing left to furnish seed and as a result such areas grow up to a tangle of weeds, brush and light seed tree species of low commercial value. Such areas are planted in order that they may not remain in this non-productive condition for a long period of years.

(h) RECONNAISSANCE, NATIONAL FORESTS

Appropriation, 1932	$131,260
Appropriation, 1933	77,860
Budget Estimate, 1934	68,410
Decrease	9,450

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Timber Survey	$75,480	$46,710	$45,000	$1,710 (1)
Range Reconnaissance	48,680	31,150	30,000	1,150 (2)
Legislative furlough deduction	- - -	- - -	- 6,590	6,590 (3)
Total	124,160	77,860	68,410	9,450

The decrease of $9,450 is explained as follows:

(1) $1,710 decrease under Timber Survey. This decrease will be met by reducing the expenditures for temporary labor, supplies, and equipment.

(2) $1,150 decrease under Range Reconnaissance. This decrease will be met by reducing the expenditures for temporary labor, supplies and equipment.

(3) $6,590 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

Timber Surveys: The first step in the management of the timber resources of the national forests is the determination of the kinds and amount of timber available in the different units. When this information is obtained it is possible to group together those units which are logically tributary to the same general lines of transportation which will carry the raw material to a common manufacturing center. Once the boundaries of such a unit of operation are decided upon and an inventory had of the merchantable timber and young growth therein, it is possible to determine the amount of timber which can be removed annually without depleting the growing stock or wood capital. All of this information is brought together in what is termed a forest management plan, and such a plan definitely fixes the annual cut and the timber sale policies and systems of cutting to be followed.

Timber surveys made to procure this information can be comparatively extensive in character since the cut is planned over a long period of years and there will be opportunities for adjustment. Once capital has been interested and the manufacturing plant assured, it is then necessary to put up a block of timber for sale and since the stumpage prices found in the appraisal are largely influenced by the volume of timber to be cut it is essential that an accurate estimate of the timber be obtained. Thus in preparing for sales of timber two types of survey are made: (1) an extensive survey to determine how much timber can be cut from the unit annually (a preliminary examination); and

(2) intensive surveys at frequent intervals of portions of the unit to fix the value of the stumpage for individual sales.

Range Reconnaissance: Plans of management are prepared to govern the handling of the forage resources of the National Forests. The range is divided up into grazing allotments - units of a size to accommodate the stock of a single individual or a group of individuals. Each allotment has a plan of management prepared for it fixing the number of stock which can be grazed without reducing the productivity of the areas. It provides for the manner in which the stock shall be grazed, the order in which the different units within the allotment shall be grazed as the season progresses, the location of the salt grounds and the supervision necessary to obtain the best utilization of the range.

Most of the grazing allotments at present have a plan of management of some nature but many of them are based on very incomplete information. In order that the best use of this grazing resource may be obtained surveys are in progress of the areas still to be covered. These surveys determine the number and kinds of forage plants found per acre on the range, their palatability, period of seeding and such related data and furnish a basis for determining the carrying capacity of the different units.

(i) IMPROVEMENT OF THE NATIONAL FORESTS

Appropriation, 1932	$2,359,200
Appropriation, 1933	1,019,640
Budget Estimate, 1934	987,084
Decrease	32,556

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Protection Improvements	$341,060	$592,000	$592,000	- -
Protection and Administration Roads and Trails	1,204,200	- -	- -	- -
Southern California Improvements	150,000	100,000	100,000	- -
Range Improvements	40,000	112,820	112,820	- -
Administrative Improvements	104,740	214,820	214,820	- -
Legislative furlough deduction ..	- -	- -	-32,556	32,556(1)
Total	1,840,000(a)	1,019,640	987,084	32,556

(1) $32,556 reduction on account of continuation of legislative furlough.

(a) Exclusive of $494,300 in 1932 appropriation expended in 1931 under immediately available provision.

CHANGE IN LANGUAGE

The change in the limitation for range improvements in this appropriation from $116,000 to $112,820 is recommended because of the reduction which was made in the improvement appropriation by Congress in the 1933 Act. When the reduction was made from the 1933 Budget estimates, the range improvement limitation should have been reduced proportionately.

WORK UNDER THIS APPROPRIATION

At the present time this appropriation is used for the construction and maintenance of improvements needed for the administration and protection of the National Forests, except camp ground improvements. There is a special appropriation for the latter class of improvements. There is also a separate appropriation for forest roads and trails, a part of which is used for the construction and maintenance of roads and trails of the same general class as those constructed under this item, when funds are provided therefor. The principal classes of improvements constructed and maintained are telephone lines, lookout structures, fire breaks, roads, trails, barns, fences, dwellings and other buildings.

Limited amounts are used for the special protective improvements on the Angeles, Cleveland, Santa Barbara and San Bernardino National Forests in Southern California and for the construction and maintenance of boundary and range division fences and other improvements necessary for the control of stock on the grazing ranges on the National Forests.

(j) EMERGENCY CONSTRUCTION (ACT JULY 21, 1932)

Appropriation, 1932	--
Appropriation, 1933	$5,000,000
Budget Estimate, 1934	--
Decrease	5,000,000

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Construction and Maintenance of National Forest Improvements	--	$5,000,000	--	$5,000,000 (1)

(1) This was an emergency appropriation for unemployment relief.

WORK UNDER THIS APPROPRIATION

The same type of improvements were authorized under this appropriation as are regularly provided for under the appropriation, Improvements of the National Forests. It is estimated that $3,910,000 of the appropriation will be expended for roads and trails and $1,090,000 for other improvements.

FOREST RESEARCH

General Statement - Forest Research

The appropriations recommended for research in forest management, range investigations, forest products, forest survey, and forest economics for the fiscal year 1934, fall under the provisions and the authorizations of the Forest Research Act approved May 22, 1928, (45 Stat., 699-702).

Except for the forest survey item, Section 9, which provides a maximum as well as an annual authorization, the Act of May 22, 1928, sets up a 10-year financial program which began with the fiscal year 1929 and ends with 1938. The year 1934 will be the sixth year of this program.

Each Section of the Act provides for work on an important phase of the forestry problem. Forest management, on how to grow timber crops and protect them against fire; range investigations, on the production and utilization of forest ranges, an important by-product, and also on other ranges; forest products investigations, on the properties, manufacture, and utilization of forest products primarily as an aid to forest land use; the forest survey and other economic investigations, on the formulation of the economic basis for sound forest policies.

All of the above recommendations therefore constitute parts of a comprehensive national and regional attack through research on the forest problems of the United States.

In the broadest sense the objectives of the comprehensive program outlined by the forest research act are to supply a scientific foundation for:

1. The productive use of forest land in the United States, which aggregates about one-fourth of our entire land area, an area nearly as large as that now classified as improved agricultural land.

The productive use of forest lands includes the growing of wood and other forest products sufficient to meet American requirements, which are now nearly half of world requirements. Productive use includes also, in connection with erosion-streamflow investigations, making lands most effective for watershed protection, and for assuring satisfactory production and use of the forage, wild life, recreational, and other forest resources.

Productive use is important because present-day American standards of living require a relatively high per capita consumption of wood, and these standards should not be lowered by a shortage. Productive use is important also because idle land is an economic burden. Surrounding and more prosperous districts must, for example, contribute to the support of the sparse populations through increased taxation. Productive use is important because the permanence of forest industries depends absolutely upon continuous wood supplies. As a group these industries rank about fourth among American industries and have a capitalization of about $3,600,000,000 exclusive of forest land and stumpage worth under normal conditions about $10,000,000,000 more.

Bringing and maintaining forest lands in productive use is a complex and difficult problem. Within the forest regions of the United States there are wide variations in topographic, climatic, soil, and other conditions. Out of a total of about 850 forest tree species we have something like 63 of high commercial value. The forest management of most European countries deals with only two or three species — fewer, in fact, than are found in any one of our important forest regions. Back of European forest practice are many decades or even centuries of tradition. In the United States we are starting from scratch. Conditions affecting production and use of forest ranges are equally variable and complex.

2. The productive use of range land in the United States. Approximately 37 million acres of forest land are grazed in the United States, from which orage constitutes an important by-product. In addition there are about 587 illion acres of untimbered range lands. The greater part of this vast area of imbered and non-timbered range land is in the West, where it furnishes about 0 per cent of the feed for the livestock industry of the 11 Western States and considerable part of the water for the 19 million acres of irrigated land. large part of it is Federally owned. Most of it outside the National Forests s producing less than 50 per cent of what it is capable, and large areas are robably not producing more than 10 per cent of what they are capable. Utilizaion of areas adjacent to the National Forests has a very direct relationship ith the proper handling of the range on the National Forests.

3. Reduction of waste in the manufacture and utilization of wood, which s now responsible for half or more of the annual cut from our forests; and also or the effective utilization of the many species of wood which are consumed by he American public.

The primary benefits accrue to forest land owners by making timber growng more profitable, and to the ultimate consumer of wood through better service.

The difficulty and complexity of forest products work is increased through he large number of American tree species and because of the great variation in he properties of single species. This variation in one sense is a liability, ut it may be made an asset through full scientific information.

4. Sound economic forest land policies - Federal, State, regional, etc. nough information on our forest situation is now available so that we know long broad lines what action must be taken. Detailed policies can not be ormulated satisfactorily until authentic and detailed data can be made availble.

Current expenditures for forestry activities by all agencies in the nited States now probably reach about $40,000,000 a year. Every dollar should e made to count to the utmost. This can be assured only through the sound echnical basis which can be obtained through research.

Regional research in forest management, range investigations, the forest urvey, and forest economics, and some of the purely local work in forest roducts, are located at regional Forest Experiment Stations. The Forest roducts Laboratory is conducted as a national institution dealing with national tilization questions, those which require laboratory facilities, and the local roducts research which does not justify a permanent local staff.

(k) RESEARCH IN FOREST MANAGEMENT

Appropriation, 1932	$562,000
Appropriation, 1933	534,280
Budget Estimate, 1934	492,671
Decrease	41,609

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Allegheny Forest Experiment Station, headquarters at Philadelphia, Pennsylvania	$31,270	$30,770	$29,900	$ 870
Appalachian Forest Experiment Station, headquarters at Asheville, North Carolina	44,520	44,070	43,400	670
California Forest Experiment Station, headquarters at Berkeley, California	61,920	60,820	59,100	1,720
Central States Forest Experiment Station, headquarters at Columbus, Ohio	29,960	29,910	29,500	410
Intermountain Forest and Range Experiment Station, headquarters at Ogden, Utah	9,650	9,150	8,900	250
In the Rocky Mountain Region	5,300	5,300	5,200	100
Lake States Forest Experiment Station, headquarters at St. Paul, Minnesota	77,990	75,690	73,700	1,990
Northeastern Forest Experiment Station, headquarters at New Haven, Connecticut	46,500	47,200	46,900	300
Northern Rocky Mountain Forest and Range Experiment Station, headquarters at Missoula, Montana ..	33,900	34,300	34,000	300
Pacific Northwest Forest Experiment Station, headquarters at Portland, Oregon	41,380	35,080	34,300	780
Southern Forest Experiment Station, headquarters at New Orleans, Louisiana	79,850	78,850	78,150	700
Southwestern Forest and Range Experiment Station, headquarters at Tucson, Arizona	12,660	12,410	12,300	110
Washington, D. C.	69,100	70,730	69,650	1,080
Legislative furlough deduction....	- - -	- - -	-32,329	32,329
Total	544,000	534,280(a)	492,671	41,609(1)

(a) Exclusive of $9,000 transferred to Research in Forest Management for completing those phases of foreign forestry research work begun in 1931 and 1932.

(1) The decrease of $41,609 is explained as follows:

(a) $32,329 reduction on account of continuation of legislative furlough.

(B) The decrease of $9,280 in the Research in Forest Management appropriation will be effected through curtailment in purchases of equipment and by reduction in periods of employment of temporary personnel, in the amounts shown above for each project.

WORK UNDER THIS APPROPRIATION

About 8,000,000 acres of forest land are cut over annually. Investigations in forest management are to determine those methods of cutting and logging which will permit the rapid reforestation to a new stand of desirable species. They are also to determine how best to manage young stands to obtain rapid growth of the best trees. Over 150 million trees of many different kinds are now produced annually in over 100 forest tree nurseries for reforestation purposes. Forest management research is to determine the best methods for raising these trees and for planting them on the thousands of acres of denuded, idle and eroding land in all parts of the country. This research is also to work out methods of converting, through cultural operations, the ragged and inferior forest and brush cover that exists on large areas of fire-swept and mismanaged lands into rapidly growing forests of desirable species. It is to determine for the many complex forest types of the country the rate of growth of these stands so that the forest owner may determine how much wood may be removed from his forest annually. It is to furnish the basis for determining how many acres of forest will be needed to maintain a mill on a perpetual basis and therby assist in the stabilization of wood manufacturing plants, and in maintaining the social and economic values of the forest.

The work includes studies of how best to prevent and to control the forest fires that annually cause losses of some $100,000,000 a year. To this end investigations are also made to determine how to better existing methods of detecting fires, of organizing the fire control forces, and how to increase the speed of attack so that the area burned over will be kept at a minimum figure. Investigations in naval stores practices are to determine how to produce continuous crops of high-grade resin from young pine forests with minimum damage to the trees that are worked. In short, the purpose of forest management investigations is to determine how to grow, manage, and protect from fire the very large number of valuable tree species which are found under a wide variety of conditions on one-fourth of the land area of the country. The work is conducted primarily at a series of regional forest experiment stations, one for each of the major forest regions of the country.

The character of the results is shown by the following: If fires are to be detected quickly, lookouts on western forests must have less than a 15-mile radius of vision. In ten years in one region forest fires, invisible to lookouts until they were of large size, cost $650,000 more to control and burned 160,000 acres more than did fires which were quickly seen by lookouts. By proper redistribution and relocation of existing lookouts on National Forests, the area visible to lookouts can be increased at no additional cost. On some National Forests this redistribution has increased the area covered as much as 570 per cent. Light ground fires such as occur in the eastern forests of oak, hickory, maple, etc., are often responsible for the death of a considerable number of the trees during the subsequent 5-year period, while losses due to decay in the wounded trees are serious and continue for an indefinite period. The rate at which cut-over lands become reforested after

results has already brought more economical production and savings

Turpentine faces that are about three-eighths of the circumference of a tree produce more gum than narrow faces which are but one-fourth the tree's circumference. In one three-year study of longleaf pine, wide faces produced 20 per cent more resin than narrow faces, and in another test running for five years, the wide faces produced 14 per cent more resin. In slash pine, the yield from wide faces was only 5 per cent greater than narrow faces over a five-year period.

(1) RANGE INVESTIGATIONS

Appropriations, 1933	$130,000
Appropriation, 1933	123,030
Budget Estimate, 1934	112,102
Decrease	10,928

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
California Forest Experiment Station, headquarters at Berkeley, California	$18,200	$18,200	$17,700	$ 500
Intermountain Forest and Range Experiment Station, headquarters at Ogden, Utah	37,050	33,530	32,700	830
Northern Rocky Mountain Forest and Range Experiment Station, headquarters at Missoula, Mont..	9,100	9,300	9,100	200
Southwestern Forest and Range Experiment Station, headquarters at Tucson, Arizona	39,890	39,640	38,640	1,000
Washington, D. C.	21,760	22,360	21,860	500
Legislative furlough deduction ..	- - -	- - -	-7,898	7,898
Total	126,000	123,030	112,102	10,928 (1)

(1) The decrease of $10,928 is explained as follows:

(a) $7,898 reduction on account of continuation of legislative furlough.

(b) $3,030 reduction in the range investigations appropriation will be effected by a general reduction in operating expenses in the amounts as shown for each project.

WORK UNDER THIS APPROPRIATION

The object of range investigations is to determine how to produce and utilize forage crops on forest and range lands most effectively. These ranges totaling 240,000,000 acres of grazed forest lands and nearly 590,000,000 acres of untimbered range lands constitute one of the most important sources of feed for the western domestic livestock industry, from which the Nation obtains a high percentage of its wool, lambs and beef. The application of

research results has already brought more economical production and savings of several million dollars to the industry annually. Thus, the work has an important bearing on the stability and welfare of the range livestock industry and conservation of the range resources. The work includes such phases as determining ways and means for restoring and improving depleted ranges by natural revegetation and by artificial reseeding, values of range plants for grazing and how to increase and maintain the more valuable species, carrying capacity of different kinds of range for different classes of livestock, the best and most profitable methods of handling livestock on ranges, adjustments in management to insure best range use without interfering with reforestation, and methods for controlling poisonous range plants on the range, etc.

The character and value of the results which are being obtained from the investigative work under this appropriation are indicated by the far better maintenance of the feed supply especially during drought, calf crops half again as large, better growth and greater values for animals, death losses one-third as much, and more economical production being obtained under experimental management on southwestern semi-desert ranges over a period of years as compared to results under the common range practice of the region.

Likewise, studies of foothill grazing problems in the San Joaquin Valley of California recently started are indicating why the type of grazing often practiced there has been so destructive to forage values. Long dry summers make forage growth difficult and the recent series of dry years has so depleted the forage cover that the problem of range feed supply has become alarming. Grazing capacity of the foothill ranges has decreased from 30 to 50 per cent during the past quarter century. Last winter on many ranges not enough dry herbage remained at the beginning of the rainy season in late autumn to furnish roughage for livestock placed on the range. New growth started within 72 hours after the first rains, but plant development was very slow and the average height of the new ground cover of green herbage did not exceed 2 inches until March. Thus there was not only an insufficient forage supply for this critical period but the close utilization on many areas seriously damaged the palatable perennial plants.

Similarly, the value of conservative grazing in stabilizing production of cattle in the Northern Great Plains of Montana is indicated by recent studies there. Under the common range practice of the region, vegetation has been so closely utilized each year that there is no reserve to offset scant production during drought, such as has prevailed for three years. The inadequate feed culminated in forced shipments of nearly 60 per cent of the breeding herds last winter at ruinous prices. Contrasted to this, on experimental ranges conservatively grazed the breeding herds were fully maintained with some supplemental feeding. After the break of the drought this spring, excellent growth on the experimental pastures made possible an excellent growth on young heifers of nearly three-pounds per day. Forage production on the experimental ranges was two to three times as much as on outside ranges and of far better quality.

(m) FOREST PRODUCTS

Appropriation, 1932	$641,300
Appropriation, 1933	613,640
Budget Estimate, 1934	566,791
Decrease.....	46,849

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
California Forest Experiment Station, headquarters at Berkeley, California.....	$17,960	$17,660	$17,660	- - -
Northern Rocky Mountain Forest and Range Experiment Station, headquarters at Missoula, Montana.....	12,910	14,110	14,110	- - -
Pacific Northwest Forest Experiment Station, headquarters at Portland, Oregon...	17,720	17,620	17,620	- - -
Forest Products Laboratory, headquarters at Madison, Wisconsin.....	531,080	509,220	509,220	- - -
Washington, D.C.....	53,130	55,030	55,030	- - -
Legislative furlough deduction	- - -	- - -	- 46,849	46,849(1)
Total.....	632,800	613,640	566,791	46,849

(1) $46,849 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The general aim of forest products research is to aid in making timber growing more profitable through more efficient utilization, and to aid in providing the public most economically with needed forest products in the form which will render the most satisfactory and efficient service. The enlargement of merchantable yields, the utilization of waste, and of species now considered inferior and worthless, and the development of new uses and improved practices are involved. The determination of the chemical composition and physical structure, strength, and other properties of all of our numerous American species is required and how these are affected and may be controlled by conditions of growth. The work also must determine how harvesting and manufacture may be conducted most efficiently and how wastes may be reduced or eliminated. Means must be determined for the selection of material which will take full advantage of the variability in the 30 or more properties of each species and avoid the handicaps of this variability. Closely related is the problem of determining the properties which are important in each type of wood use and the selection of the most suitable and economical woods for each. The work involves the development of methods for modifying wood material, such as making it more resistant against decay, less inflammable, and of developing improved methods of seasoning, storing, and handling from mill or factory to the ultimate consumer. The work must cover the adaptation of material to service through improvement of design in building and other construction. Finally, another group of problems involve the conversion of wood into chemical and fibrous materials such as pulp, paper, fiber board, plastics, etc., and the production and utilization of products such as naval stores.

The depression has hit the forest industries especially hard, and their condition is reflected in the communities, states, and regions in which these industries are located. The collapse of the building market where more than 60 per cent of the lumber produced is used has caused very serious losses of capital and wages in the woods, at the mill, and among the fabricating industries. Many mills have shut down. Thousands of men are without work. Many lumber and fabricating companies have failed. The research program now

under way at the Forest Products Laboratory is designed to meet the problems of this situation.

The emergency program includes investigations to bring about radical improvements in the engineering of wood construction so that simple and inexpensive but thoroughly satisfactory wooden houses can be built. Such improvements would mean more desirable homes to the consumer and new life to the building market. The program includes fire retardent investigations to find a cheap treatment that will make wood fire resistant and so open up a potential market for billions of feet that have been lost on account of the fire hazard of untreated lumber. Antishrink and preservative treatments are part of the emergency program. Here again treatments that would successfully reduce shrinkage and swelling would give a tremendous impetus to wood utilization as would also the development of a colorless, odorless chemical capable of making wood resistant to decay and insect attack. The strength of wood fastenings - nails and bolts - has been worked out as one important key to the mass production of material that can be erected in units. Search is under way to develop better methods of painting so that repainting will not be necessary at such frequent intervals.

In the field of pulp and paper research marked progress has been made, especially in the development of a satisfactory process for making strong white papers from the southern and western woods. Last year we "exported" 47,000 full-time American jobs by importing $250,000,000 worth of paper. This is not necessary. The application of findings at present available from laboratory research can stop it in part, and it is highly possible that further research can make it entirely feasible to supply our entire needs from our own country as we grow and waste enough wood to supply all the paper we use. Growing our own supplies of pulpwood means help to timberland owners, particularly those who are trying to grow timber.

The following examples illustrate the kind of results which are being obtained. Favorable results previously obtained in the production of strong white pulps from southern loblolly pine were practically duplicated with longleaf, slash, and sand pines by a modified sulphite or kraft process. This process was also applied to western woods and gave very satisfactory results with Douglas fir. Good bleached pulps suitable for book and bond papers were produced. Slash pine as a raw material for newsprint is receiving earnest consideration in many quarters. Experiments last year demonstrated that the commercial sulphite pulp process gives satisfactory results from slash pine free from heartwood, and earlier investigations have shown that ground wood pulp of satisfactory color and average strength can be produced from young slash pine with reasonable power expenditure.

Based on a nation-wide survey of the moisture content of wood in dwellings, regional averages of the moisture in various wooden house parts from cellar to attic have been determined. These regional averages indicate the proper moisture content of wood to be used in interior construction in various parts of the country and should aid materially in reducing the troubles experienced in shrinking, swelling, and opening of joints of wood in service, which are due in part to using the lumber at a moisture content too high or too low for the humidity conditions of the particular locality.

Studies of the strength of various types of wooden columns built up of comparatively short pieces nailed together showed results varying from 27 to 91 per cent of the strength of the solid wood columns. Those results indicate the possibility of replacing solid wooden columns of any required strength with somewhat larger columns built up of cheap material and also the possibility of mass production at the mill of columns in long lengths that may be difficult to obtain in solid material.

Six-year exposure tests have shown that the relative life of paints now generally used on wood is determined in large part by the characteristics of the wood itself. A leaflet has been published explaining this relation and classifying American softwoods according to their paint-holding power.

The results of a logging and milling study on second-growth shortleaf and loblolly pine in Arkansas showed the greatest returns per acre when only 12 inches in diameter and upwards were cut. Similar studies on old field loblolly pine in Louisiana gave a diameter of 15 inches and upwards for highest returns per acre. In studies made in Virginia and North Carolina on loblolly pine, the lowest diameters for maximum returns were12 inches and 11 inches, respectively.

An experimental portable dry kiln was tested on two locations with charges of southern pine. From the results of these runs it is probable that a practical kiln design can be developed for the use of small mill operators so that the large amount of lumber produced at these mills can be marketed in better and more salable condition. It was shown that by greater care in the adjustment of set works on the carriage of small sawmills the value of salable lumber can be increased by as much as $1.60 per thousand. Particular attention was given to the kiln drying of Douglas fir and drying schedules were worked out for the wide clear grade to secure rapid drying with minimum damage to stock. Experiments demonstrating the efficacy of increased air movement in the drying of Douglas fir were instrumental in inducing producers to adopt last year the first moisture specification applying to that species.

(n) CONSTRUCTION FOREST PRODUCTS LABORATORY BUILDING

Appropriation, 1932	$800,000
Appropriation, 1933	--
Budget Estimate, 1934	--

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Forest Products Laboratory Building	$640,869	$236,791	--	--

The total appropriation for this project was $900,000, of which amount $22,340 was expended during the fiscal year 1931. The project will be completed during the fiscal year 1933.

(o) FOREST SURVEY

Appropriation, 1932	$200,000
Appropriation, 1933	170,280
Budget Estimate, 1934	160,067
Decrease	10,213

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Decrease
California Forest Experiment Station, headquarters at Berkeley, California	$8,500	$7,400	$7,400	- - -
Lake States Forest Experiment Station, headquarters at St. Paul, Minnesota	9,500	8,840	8,840	- - -
Northern Rocky Mountain Forest and Range Experiment Station, headquarters at Missoula, Montana	18,000	14,500	14,500	- - -
Pacific Northwest Forest Experiment Station, headquarters at Portland, Oregon.	74,000	66,000	66,000	- - -
Southern Forest Experiment Station, headquarters at New Orleans, Louisiana	54,400	47,820	47,820	- - -
Washington, D. C.	25,500	25,720	25,720	- - -
Legislative furlough deduction	- - -	- - -	-10,213	10,213 (1)
Total	189,900	170,280	160,067	10,213

(1) $10,213 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

It would be hard to conceive a project aimed more directly at the major economic problems connected with land and industry now confronting this country than the Forest Survey. Much emphasis is being placed by both National and local agencies on the need for land classification and land-use planning. The Forest Survey furnishes valuable information for the classification of our forest land, and will provide facts indispensable to the proper planning of the use of both our present and our potential forest area. It is determining the exact extent of our forest land area, what the land is now producing and can produce, how fast our forests are being dissipated and the offsetting rates of growth, and both what our probable wood requirements will be and the possibilities for their expansion to furnish the basis for a profitable timber cropping of the maximum acreage of forest land.

The existing critical economic conditions have brought into sharp focus the long-standing need to examine and adjust the highly confused forest and land use situation in the United States. In normal times the support of 8,000,000 to 10,000,000 persons - wage earners and dependents - is based on our forests. The land involved is more than that in all harvested crops. An inventory covering some 500,000,000 acres of forest land and bearing directly on the possibilities for forest use of added millions of reverting submarginal farm land, should not be delayed.

The effect of the present economic disturbance has been to accelerate tax delinquency and land abandonment in cutover and submarginal farm areas, and to bring the forest industries to the most critical condition in their history. This means severe economic and social dislocations. It calls for prompt delivery of the results of the Survey on which to build, in part, the firmer structure which must be created out of the present upset situation.

Pacific Northwest

All field work and much of the office compilation in the Douglas fir region will be completed in the fiscal year 1933 and the report will be finished in the fiscal year 1934, after which the study will be extended to the pine region of eastern Oregon and Washington. Cooperation has been furnished by the lumber industry in the form of confidential timber cruises, maps, etc., and by State and private agencies in funds and loan of personnel.

The largest forest land and timber owner in the United States is using data gathered by the Survey in the Pacific Northwest to aid in determining possibilities of permanent forest management of his timber lands in that territory. The establishment of sustained yield management on private forest lands is the one thing that will go farthest to solve our forest supply and forest land use problems. A pending large merger in the Douglas fir region said to contemplate sustained yield, is using Survey data to build on.

Southern

The South contains nearly 40 per cent of the nation's forest land, produces a third of our softwood lumber, all our naval stores and more hardwood lumber than any other region. Work in the southern territory has just got well under way, having covered all the bottomland hardwood area in the State of Mississippi and part of the upland hardwood and pine territory in that state. The project will be extended to the rest of the South as fast as funds are made available.

State leaders, through the survey, have become interested in the possibilities of forest use in making something out of the large area of abandoned farm land which seems permanently out of the picture for agriculture.

Northern Rocky Mountain

Work was initiated on a small scale in this region in 1931. Since the region is practically the only source of supply of the highly useful western white pine, and since its forest land problems are acute, the study is of present urgency.

In Montana and Idaho the trend is strongly toward consolidating the entire timbered area under a few strong managements to effect sustained yield and consequent community and industrial stability.

Lake States

Already facts gathered by the Survey and the State land studies are being used in actual zoning and land-use planning in Wisconsin, thus striking directly at the submarginal farm land problem and also setting up county forests. In Michigan and Minnesota similar action is planned. Thus immediate

local value and use are given to the Survey, in addition to its indispensable function as part of the national project. Since there are 56,000,000 acres of forest land in the Lake States, plus millions of acres of abandoned farm lands potentially useful for forestry, the study is obviously of immediate importance from both national and State angles. The Federal Government's part financially is a minority one so far, most of the cost being borne by the states.

California

So far the California work has been limited to supplementing State effort in the preparation of the type map part of the project. The work is within about two years of completion, and active use for land planning, forest fire control, etc., is already under way. Several California counties are requesting the forest and brush cover type map data gathered by the Survey, for use as part of a statewide project in land-use planning.

(p) FOREST ECONOMICS

Appropriation, 1932	$75,000
Appropriation, 1933	70,240
Budget Estimate, 1934	65,608
Decrease	4,632

PROJECT STATEMENT

Project	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Lake States Forest Experiment Station, headquarters at St. Paul, Minnesota	$7,900	$7,740	$7,740	- - -
Pacific Northwest Forest Experiment Station, headquarters at Portland, Oregon	20,900	18,700	18,700	- - -
Southern Forest Experiment Station, headquarters at New Orleans, Louisiana	30,700	28,450	28,450	- - -
Washington, D. C.	15,500	15,350	15,350	- - -
Legislative furlough deduction	- - -	- - -	-4,632	4,632 (1)
Total	75,000	70,240	65,608	4,632

(1) $4,632 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

This appropriation includes work in the field of Forest Economics other than that which is specifically provided for elsewhere. This excludes work on the Forest Survey which is provided for under Section 9 of the McSweeney-McNary Act and Forest Insurance and Forest Taxation provided for by the Clarke-McNary Act. Work under this appropriation involves the three major projects: the Development of Private Forestry, the New Public Domain, and the Financial Aspects of Private Forestry Practice.

Development of Private Forestry

This is an investigation to discover the things which are retarding the development of private forestry, which is making hardly discernible prog-

ress in the United States, and to devise ways and means of overcoming these obstacles. It is closely related to the work described hereinafter under Financial Aspects. Since four-fifths of the nation's forest area is in private ownership, the acceleration of private forestry development is obviously of the utmost importance.

The project conducted by the Pacific Northwest Forest Experiment Station has thus far been concentrated in the Douglas fir region of western Oregon and Washington, a region characterized by enormous stands of virgin timber, where exist the most destructive over-liquidation of private forests and over production of lumber, without any plan for perpetuating the resources under private management, and with a discouraging effect on private forestry elsewhere in the U. S. Exhaustive analyses have been made of costs and returns from logging and manufacturing trees and logs of different sizes and species and under a variety of silvicultural and physical conditions, and of the operating efficiency of different types of logging machinery. The results indicate the feasibility, through improved and cheaper logging methods and by applying the principles of selection, of removing the high values from the stands while leaving for volume and value increment the trees or stands which because of size, species, or location have not yet ripened economically. Such practices generally applied would not only represent tremendous improvement in logging efficiency, and in silvicultural results, but they would have the effect of slowing down liquidation and of encouraging sustained yield management. Further work is necessary in the Douglas fir region to maintain the progress made and to insure application of findings. The spectacular success promised from the work here suggests corresponding possibilities for accomplishments in other forest regions.

In the Douglas fir region the West Coast Lumberman's Association and several private operators have not only displayed the keenest interest in this study but have extended material and essential cooperation. Notable among the cooperating concerns has been the Crown Willamette Paper Company. The Pack Foundation proposes to finance the publications of results.

New Public Domain

This is an investigation of the basic causes of reversion to public ownership, usually through tax delinquency, of increasingly large areas of cutover forest lands; of the trends of reversion and the economic factors influencing them; and of the measures necessary to obtain sound economic use of such areas, either under restored private ownership or by public ownership and management. The study is aimed at the solution of a rapidly expanding problem of forest land abandonment which in several regions is causing severe economic and social disturbances, accelerated by the present economic depression, but of much longer standing. The study is contributing in an essential way to the formulation of regional programs of land use under the stimulus of the National Land Use Planning Committee and other agencies.

The work is being conducted by the regional forest experiment stations in the Lake States, the Pacific Northwest, and the Southern regions -- in all of which the problem is of grave importance. The study shows, for example, that in the 16 northern counties of Minnesota there are nearly 7 million acres tax delinquent, or 44 per cent of the taxable land in these counties; that the trend is toward greater delinquency; and that by 1933, four million acres

will probably have completely reverted to public ownership, and that thereafter the rate of reversion will probably be at the rate of about one million acres a year. The situation is equally bad in Wisconsin and Michigan. In each of these states local remedial effort is well advanced. This Federal study, in cooperation with state agencies, supplements and strengthens the local effort.

The preliminary survey for the Southern states shows a total of over 14 million acres largely in three states reverting or reverted to public ownership. Much of this is cut over forest land. The detailed work by the Southern Forest Experiment Station at this time is in Arkansas and in cooperation with the Arkansas Agricultural College. With the latter's facilities for handling the agricultural and social aspects, a well rounded out study, and more effective results, are possible than could be secured through either agency alone.

The work has been under way but a few months in the Pacific Northwest but the study conducted with the cooperation of local county officials, has already shown the seriousness of the situation in eleven of the Douglas fir counties and has secured factual information in urgent demand by such agencies as the Oregon State Bankers' Association, local Chambers of Commerce, the Agricultural Experiment Stations, and other individuals and agencies working toward the solution of various land use and local governmental problems in these regions.

Financial Aspects of Private Forestry

This is the first comprehensive study designed to show how much it costs to grow forests and the returns which may be obtained by private owners, and under different sets of conditions and methods of treatment. It is being conducted by the Southern Forest Experiment Station.

Since four-fifths of the forest land in the United States is privately owned, the national problem of forest supplies and productive use of forest lands lies chiefly in the private holdings. Moreover, such information as this study is designed to secure is absolutely fundamental to the coordination of forestry, agriculture, and other major land uses. It is essential in the formulation of regional and national land use planning programs - developments which have received fresh impetus from the economic depression, and under the leadership of the National Land Use Planning Committee and other agencies. The South has nearly 40 per cent of the forest land of the United States and heavy dependence is placed on the South as a source of the nation's supply of forest products. Data have been gathered, compiled and analyzed as to forest conditions, forest land management practices, methods of utilizing forest products, and market conditions in eleven sample counties in eight states. Preliminary reports, mostly by individual counties, are in various stages of completion. Large possibilities in private forestry are indicated, but as a rule the productivity of private lands has deteriorated under existing practices. So-called case studies of large operations have commenced.

The work has received important cooperation from the State forester of Florida who published one of the reports, State foresters of Mississippi and Georgia, extension foresters, and many county officials.

(q) FOREST FIRE COOPERATION

Appropriation, 1932	$1,775,000
Appropriation, 1933	1,611,580
Budget Estimate, 1934	1,601,233
Decrease	10,347

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Taxation Inquiry and Insurance	$63,700	$63,720	$63,720	- - -
Cooperation with States in Forest Fire Prevention and Suppression	1,654,576	1,547,860	1,547,860	- - -
Legislative furlough deduction	- -	- -	-10,347	10,347 (1)
Total	1,718,276	1,611,580	1,601,233	10,347

(1) $10,347 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

Investigations of forest taxation and forest insurance --

The purpose of investigations in forest taxation is to establish the fundamental principles upon which forest taxation should be based and to cooperate with States in working out legislation which will conform to these principles, and at the same time be adapted to local requirements. The work involves the collection and analysis of data on such subjects as: The economic and legal background of the entire system of taxation in individual States; the financial structure and existing tax system of States, counties, and minor political subdivisions; expenditures for roads, schools, and other governmental functions; the practical operation of the taxation system in general, including its effect on different classes of property, assessment practices, etc.; existing State forest tax legislation; the actual effect of existing laws on the use of land for growing timber; methods and results of forest tax legislation in European countries where forestry is well established.

The work of the taxation staff (or Inquiry) has already been tangibly presented in 17 factual progress reports on various aspects of the forest taxation problem. The Inquiry is now working under the utmost pressure to complete by the end of the calendar year 1932 a comprehensive report bringing together the results of the fundamental researches of the Inquiry to date and presenting the conclusions as to principles and as to the most effective application to different sets of conditions. It is planned to continue the work of the Inquiry by more localized application studies looking toward the assistance of states in desirable modifications in existing forest taxation legislation.

The economic depression has served to emphasize forest taxation as one of the complex features of the whole involved taxation situation. States and other agencies are taking up forest taxation in earnest. The importance of forest taxation as a factor in keeping forest land productive, and of remedial

action are featured in the recent report of the President's Timber Conservation Board. There is urgent demand for the findings and the assistance of the Inquiry. The work of the Inquiry to date and planned will be invaluable in formulating appropriate legislative changes and other provisions to meet the varying local forest taxation situations.

The purpose of forest insurance investigation is to determine under what conditions privately financed fire insurance on growing forests and mature timber is feasible, and to work out a satisfactory basis and form for such insurance. As an offset to high fire hazard on cutover areas restocking to forest growth, reasonably-priced fire insurance would do much to encourage private forestry.

The work consists of the collection, where not already available, and analyses of such data as: Statistics of forest fires, including information as to cause, location, seasons, weather conditions, condition of the forest cover, etc.; appraisal of the damage caused by fire in the different types of forest, under different conditions; ratios of loss to values at stake, as a basis for insurance rating schedules.

The project, conducted by the Pacific Northwest Forest Experiment Station for that region is nearly completed in the Douglas fir section of Washington and Oregon, and is well under way in the pine forests east of the mountains of those states.

Close and essential cooperation has been maintained with various local agencies, especially the State foresters, fire wardens and fire protection associations -- the agencies which directly handle fire protection on the private forest lands of those states. Contacts are maintained with and consulting cooperation obtained from insurance authorities.

A fire insurance business can not soundly be based on a single region. It will be necessary to extend the project to other important forest regions such as the Northeast and the Lake States.

Cooperation with States in forest fire prevention and suppression.

In the fiscal year 1933 the Federal Government is assisting 37 States and one territory to prevent and suppress forest fires within their boundaries. The administration of this activity is handled in each State by the State Forestry Department; the Federal Government provides a proportion of necessary funds and brings to the States for their consideration and aid the composite experience and knowledge gained through nation-wide contact with the forest fire problem. The experience of the individual States and of the Federal Government on the National Forests is made available to all of the States. This is accomplished by a field personnel of District Forest Inspectors located at Amherst, Massachusetts; Washington, D. C.; Asheville, N. C.; New Orleans, Louisiana; and Louisville, Kentucky; and through the Regional headquarters in the Lake States and in the West.

Plans and budgets are submitted to the Forest Service by the cooperating States which must have joint approval of the Federal Government and the States before they are put into effect. The expenditures reported by the States are the basis for the receipt by the States of their share of the Federal appropriation. A careful checking of the bookkeeping records of each

cooperating State is one of the tasks of each District Forest Inspector.

During the calendar year 1931, 56,438 fires were handled by the State organizations, the reported area burned being 5,834,400 acres. The area protected in these projects during the calendar year 1931 was 228,000,000 acres. Approximately 193,000,000 acres which has been classified as needing protection receives none. The States are making constant efforts to expand their protected areas. Material increases in State and Federal funds provided for the work are essential if progress is to be made.

Progress in cooperative forest fire protection is roughly indicated by the following expenditures:

	Cal. Year 1911	Cal. Year 1931
Total cooperative expenditures	$ 257,000	$ 7,222,000
State and private "	220,000	5,689,000
Federal "	37,000	1,533,000
Number of States and territories cooperating	11	38
Areas protected (State and private forest land)	61,000,000 a.	228,000,000 a.

STATE SUMMARY OF ALLOTMENTS

FOREST FIRE COOPERATION UNDER SEC. 2 OF THE CLARKE-MCNARY LAW

States	Estimated cost of adequately protecting State and Private Forest Lands	Expenditures for protection: All sources Calendar Year 1931	Federal Allotments Actual F.Y.1933	Federal Allotments Estimated F. Y. 1934 (Same as 1933)	States
Alabama	$ 573,000	$ 88,036.78	41,000	41,000	Ala.
Arkansas	484,000	-	-	-	Ark.
California	969,000	977,758.51	160,787	160,787	Calif.
Connecticut	76,000	71,195.23	12,611	12,611	Conn.
Delaware	12,000	7,836.66	2,024	2,024	Del.
Florida	847,000	147,148.87	67,760	67,760	Fla.
Georgia	775,000	102,086.53	62,000	62,000	Ga.
Hawaii	5,000	1,017.45	444	444	Hawaii
Idaho (N)	420,000	429,526.39	57,695	57,695	Idaho N
Idaho (S)	27,000	27,267.27	4,370	4,370	Idaho S
Illinois	77,000	13,600.00	-	-	Ill.
Indiana	84,000	15,117.89	6,894	6,894	Ind.
Kentucky	212,000	39,018.41	14,000	14,000	Ky.
Louisiana	434,000	135,758.48	45,421	45,421	La.
Maine	342,000	223,154.87	54,272	54,272	Me.
Maryland	73,000	88,676.62	11,317	11,317	Md.
Massachusetts	169,000	130,930.47	30,004	30,004	Mass.
Michigan	662,000	748,816.90	111,047	111,047	Mich.
Minnesota	697,000	535,710.71	89,896	89,896	Minn.
Mississippi	563,000	52,167.98	30,000	30,000	Miss.
Missouri	347,000	-	-	-	Mo.
Montana	190,000	147,069.82	24,621	24,621	Mont.
Nevada	14,000	7,852.56	1,885	1,885	Nev.
New Hampshire	131,000	59,385.23	16,191	16,191	N.H.
New Jersey	128,000	149,440.84	23,034	23,034	N.J.
New Mexico	26,000	5,331.00	2,174	2,174	N.Mex.
New York	378,000	305,835.07	59,097	59,097	N.Y.
North Carolina	632,000	109,551.62	50,560	50,560	N.Car.
Ohio	60,000	20,102.01	5,903	5,903	Ohio
Oklahoma	165,000	35,926.82	14,820	14,820	Okla.
Oregon	584,000	579,374.89	91,488	91,488	Ore.
Pennsylvania	364,000	614,069.25	52,690	52,690	Pa.
Rhode Island	17,000	7,286.58	1,733	1,733	R.I.
South Carolina	378,000	70,758.77	31,044	31,044	S.Car.
South Dakota	4,500	3,975.58	847	847	S.Dak.
Tennessee	245,000	45,357.25	19,600	19,600	Tenn.
Texas	434,000	102,162.03	39,238	39,238	Texas
Vermont	57,000	19,378.37	5,908	5,908	Vt.
Virginia	397,000	100,355.96	34,186	34,186	Va.
Washington	632,000	502,503.06	89,269	89,269	Wash.
West Virginia	312,000	117.082.55	26,810	26.810	W.Va.
Wisconsin	390,000	384,260.41	65,485	65,485	Wis.
Totals	$ 13,386,500	$ 7,221,885.72	$1,458,125	$1,458.125	
Administration & Inspection			81,880	81,880	
Forest Taxation & Insurance Study			63,720	63,720	
Contingent for additional States			7,855	7,855	
			1,611,580	1,611,580	

(r) COOPERATIVE DISTRIBUTION OF FOREST PLANTING STOCK

Appropriation, 1932	$95,000
Appropriation, 1933	79,960
Budget Estimate, 1934	74,730
Decrease	5,230

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Cooperation with States in the Procurement, Production, and Distribution of Forest Tree Seeds and Plants, in Establishing Windbreaks, Shelter Belts, and Farm Woodlots upon Denuded or Nonforested Lands	$94,930	$79,960	$74,730	$5,230 (1)

(1) The decrease of $5,230 in appropriation is explained as follows:

(a) The decrease of $4,960 in this appropriation will be met principally through curtailments in the amounts allotted to the States. (See table following)

(b) $270 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

In spite of the depression which has very much retarded forest planting activities, the States distributed a total of 25,510,000 trees to farmers under these cooperative projects during the calendar year 1931, a decrease of only 300,000 trees from the number distributed in 1930. The projects resulted in the planting of about 25,500 acres of windbreaks and farm woodlots. These trees are furnished to farmers at a reasonable cost. Their planting represents direct action aimed at the profitable utilization of farm lands which are submarginal for agricultural use. In these projects, just as in the fire cooperation projects, the work is administered directly by the State agencies; the Forest Service inspects, advises, and correlates.

During the calendar year 1931, the Federal Government expended $93,334 in this project and the States $232,278, a total for both agencies of $325,612. In addition to the distribution of trees to farmers, some of the States involved are carrying on a much wider distribution to others than farmers for the reforestation of forest land. During 1931 the total distribution of trees by States, including those for planting on State land, was 103,000,000.

State Summary of Allotments for
Distribution of Forest Planting Stock under Section 4 of the
Clarke-McNary Law, F. Y. 1934

State	Total State Funds*	State Funds Devoted to Cooperative Project	% Total Output to Farmers	1933 Federal Allotment	Distribution of Decrease Proposed for F.Y. 1934	Indicated Total Federal Allotments F.Y. 1934
Alabama	$ 660.00	$ 540.00	90	$ 540.00	$ 6.00	$ 534.00
California	11,430.00	437.00	7	437.00	5.00	432.00
Colorado	2,305.00	2,305.00	100	2,000.00	27.00	1,973.00
Connecticut	8,000.00	2,000.00	40	2,000.00	27.00	1,973.00
Delaware	3,500.00	1,500.00	60	1,500.00	20.00	1,480.00
Florida	4,205.00	2,992.00	80	2,000.00	27.00	1,973.00
Georgia	3,500.00	2,400.00	80	2,000.00	27.00	1,973.00
Hawaii	45,600.00	19,896.00	46	2,000.00	27.00	1,973.00
Idaho	928.00	928.00	100	928.00	12.00	916.00
Indiana	20,500.00	10,375.00	55	2,000.00	27.00	1,973.00
Iowa	3,000.00	2,000.00	80	2,000.00	27.00	1,973.00
Kansas	7,471.00	1,585.00	35	1,584.00	22.00	1,562.00
Kentucky	5,000.00	2,667.00	66	2,000.00	27.00	1,973.00
Louisiana	11,342.00	3,337.00	40	2,000.00	27.00	1,973.00
Maine	1,500.00	1,500.00	100	1,500.00	20.00	1,480.00
Maryland	8,475.00	2,190.00	40	2,000.00	27.00	1,973.00
Massachusetts	38,000.00	8,000.00	25	2,000.00	27.00	1,973.00
Michigan	7,428.00	5,542.40	80	2,000.00	27.00	1,973.00
Mississippi	657.00	657.00	100	657.00	8.00	649.00
Montana	4,300.00	3,040.00	80	2,000.00	27.00	1,973.00
Nebraska	10,750.00	10,750.00	100	2,000.00	27.00	1,973.00
New Hampshire	18,179.68	8,089.84	50	2,000.00	27.00	1,973.00
New Jersey	24,330.00	16,431.00	70	2,000.00	27.00	1,973.00
New York	263,500.00	24,550.00	10	2,000.00	27.00	1,973.00
North Carolina	4,117.00	3,505.00	90	2,000.00	27.00	1,973.00
North Dakota	7,750.00	7,750.00	100	2,000.00	27.00	1,973.00
Ohio	24,300.00	11,150.00	50	2,000.00	27.00	1,973.00
Oklahoma	4,000.00	4,000.00	100	2,000.00	27.00	1,973.00
Oregon	2,000.00	2,000.00	100	2,000.00	27.00	1,973.00
Pennsylvania	42,960.00	20,480.00	50	2,000.00	27.00	1,973.00
Puerto Rico	10,044.88	6,431.42	70	2,000.00	27.00	1,973.00
South Carolina	7,054.00	3,432.00	60	2,000.00	27.00	1,973.00
Tennessee	4,476.00	4,476.00	100	2,000.00	27.00	1,973.00
Utah	1,300.00	1,300.00	100	1,300.00	18.00	1,282.00
Vermont	7,000.00	2,500.00	50	2,000.00	27.00	1,973.00
Virginia	2,823.00	2,147.78	86	2,000.00	27.00	1,973.00
Washington	3,235.00	2,475.00	85	2,000.00	27.00	1,973.00
West Virginia	6,000.00	2,800.00	60	2,000.00	27.00	1,973.00
Wisconsin	13,440.00	2,632.00	30	2,000.00	27.00	1,973.00
Wyoming	2,438.00	2,438.00	100	1,522.00	20.00	1,502.00
Total	647,528.56	213,229.44		71,968.00	968.00	71,000.00
Administration				4,000.00		4,000.00
Contingent for allotment to new States				3,992.00		---
Total appropriation				79,960.00		75,000.00

*This column includes all State funds available for tree production and distribution.

(s) ACQUISITION OF LANDS FOR PROTECTION OF WATERSHEDS OF NAVIGABLE STREAMS

Appropriation, 1932	$2,000,000
Appropriation, 1933	200,000
Budget Estimate, 1934	192,100
Decrease.....	7,900

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	decrease
Examination and Purchase of Additional Forest Lands at Headwaters of Navigable Streams	$1,700,000	$200,000	$192,100	$7,900 (1)

(1) $7,900 reduction on account of continuation of legislative furlough.

CHANGE IN LANGUAGE

It is recommended that the language "as authorized by the Act of June 2, 1930 (46 Stat., p. 491)," be omitted, since the particular Act cited does not carry an authorization for the Fiscal Year 1934. Existing law is deemed sufficient authorization for appropriation and no special legislative authorization has been sought.

Under the Act of March 1, 1911 (36 Stat. 961) as amended by the Act of June 7, 1924 (43 Stat. 653) and other amendatory or supplemental acts; a total of 41 National Forest purchase areas have been established within 22 of the States east of the Great Plains. Within these units the United States to the present time has purchased or approved for purchase 4,727,680 acres of land at a total cost of $21,277,804.23. These lands combined with lands reserved from the public domain or transferred from other Departments or secured through exchange aggregate 7,231,555 acres now under Federal control. Within these areas there remain in private ownership approximately 7,500,000 acres that should be acquired in order to realize the public purposes for which the areas were initially established. The estimated cost of these unacquired lands is approximately $30,000,000, and all present circumstances indicate strongly the certainty that as soon as financial conditions will permit the United States will proceed to extend its holdings within the areas.

In recognition of this situation it seems necessary to maintain the nucleus of the skilled and specialized organization developed to conduct this purchase work. While this force will not be engaged on current purchases it will be employed in the determination and compilation of grant, title and survey data and in the examination, mapping and appraisal of lands ultimately to be acquired by the U. S. so that its work will contribute fully and directly to the objectives of the appropriation. Of the proposed appropriation, approximately $95,209 will be expended for salaries and wages, and $19,750 for subsistence, travel, supplies, equipment and other similar items.

The remainder of the appropriation, $85,041, will be used to purchase small tracts of land vitally essential to the proper protection, management and use of the Federal lands. Every year it is found that certain privately owned lands control the utilization of the products of the National Forest lands, or constitute undue fire hazards or obstruct orderly plans of road and trail construction. Where such lands can be purchased at fair and equitable prices their acquisition generally is the most economical solution of the problems created by their private control.

WORK TO BE DONE UNDER APPROPRIATION

(1) Determinations and compilations of title data, including original colonial grants and other basic information; checks and execution of surveys defining boundaries of public and private holdings; examination, mapping, appraisal, etc. of lands ultimately to be acquired by the United States; preparation of reports and plans of management; protection and administration of lands now owned by United States. (2) Purchase of key tracts or areas so related to present holdings of United States as to control the utilization of the products of National Forest lands; or accentuate or increase hazards of fire, insects or disease; or obstruct the orderly development of the necessary system of roads, trails and other administrative and protective improvements.

CHANGE IN LANGUAGE

The insertion of the following language at the end of the Forest Service section of the appropriation act after "Total, Forest Service (17,383,304)" is recommended:

> "$12,355,519, of which amount not to exceed $26,835 shall be available for the purchase of motor-propelled and horse-drawn passenger-carrying vehicles necessary in the conduct of field work outside the District of Columbia, and in addition thereto there is authorized for expenditure from funds provided for carrying out the provisions of the Federal Highway Act of November 9, 1921 (U.S.C., Title 23, Secs. 21 and 23), not to exceed $4,250 for the purchase of motor-propelled passenger-carrying vehicles for use by the Forest Service in the construction and maintenance of National Forest roads."

Under the Department's authorization for 1933 for purchase of passenger-carrying vehicles, $46,740 was allotted to the Forest Service. The estimate for 1934 is $31,085, a decrease of $15,655. A brief summary of the motor-propelled passenger-carrying vehicle estimate follows:

Vehicles on hand July 1, 1933		223*
Estimated purchases, 1934	58	
Replacements	25	
Net increase		33
Total estimated, 1934		256

1934 purchases:	
Estimated gross cost	$33,460
Estimated allowance on turn-ins	2,375
Estimated net cost	31,085
Cost per car including turn-in	576.89
Cost per car exclusive of turn-in	535.94

*Includes 41 railroad speeders and 3 motorcycles.

The estimate of authorizations for passenger-carrying vehicles for the fiscal year 1934 is approximately 35% less than the amount allotted to the Forest Service for the fiscal year 1933. The authorization requested is needed in order to substitute where practicable, without increased cost, Government-owned automobile transportation for either or both privately-owned automobiles paid for on a mileage basis and horse and pack outfits subsisted by the Government. Nearly one-half of the authorization requested is needed for the replacement of cars now in service.

Approximately 65% of the employees of the Forest Service do the major part of their work while actually in the woods and must necessarily be in a travel status a great part of their time. Where there are few roads in the forests, work must be performed largely by the use of privately-owned Government-maintained horses and employee-owned or hired cars paid for on a mileage basis. It is not economical for the Government to own cars where their use is limited and the annual mileage consequently low, but where roads and the work to be performed call for the greater part of travel by car, it is more economical for the Government to own the car than pay mileage. Mileage rates are based on actual operating costs and since the Government can purchase cars, repair parts, gasoline and oil at large discounts and pays no taxes or insurance, it can operate cars for much less per mile than the employee. As a substitute for horses in administration and fire control, the car is indispensable. With the development of roads in the forests, the fire hazard and use of such areas increase and the automobile has been largely instrumental in keeping abreast of such managerial problems. The policy has been the gradual substitution of a more efficient means of transportation for a less efficient one with little or no increase in the aggregate cost. It is recommended that this practice be continued as rapidly as funds will permit.

PERMANENT INDEFINITE APPROPRIATIONS AND SPECIAL FUNDS

(t) REFUNDS TO DEPOSITORS, EXCESS OF DEPOSITS, NATIONAL FORESTS FUND

Appropriation, 1932	$75,000
Appropriation, 1933	75,000
Budget Estimate, 1934	75,000

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Refunds	$67,472	$75,000	$75,000	- -

WORK UNDER THIS APPROPRIATION

All money received, by or on account of the Forest Service for timber, or from any other source of forest-reservation revenue, is covered into the Treasury of the United States as a miscellaneous receipt; and there is appropriated so much as may be necessary to make refunds to depositors of money deposited by them in excess of amounts found actually due from them to the United States, and so much as may be necessary to refund to the rightful claimants such sums as may be found to have been erroneously collected for the use

of lands, or for timber or other resources sold from lands located within, but not a part of, the National Forests, or for alleged illegal acts done upon such lands, which acts are subsequently found to have been proper and legal.

(u) NATIONAL FOREST RESERVATION COMMISSION

Appropriation, 1932	$500
Appropriation, 1933	475
Budget Estimate, 1934	475

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Increase or decrease
Expenses of National Forest Reservation Commission	$420	$475	$475	-

WORK UNDER THIS APPROPRIATION

A sum sufficient to pay the necessary expenses of the commission and its members, not to exceed an annual expenditure of $25,000, has been appropriated, to be paid out on the audit and order of the president of the commission, which audit and order is conclusive and binding upon all departments as to the correctness of the accounts of the commission.

(v) PAYMENTS TO STATES AND TERRITORIES, NATIONAL FORESTS FUND

Appropriation, 1932	$1,600,000
Appropriation, 1933	1,240,000
Budget Estimate, 1934	940,000
Decrease	300,000

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Payment of 25% of National Forest receipts to States in which National Forests are situated	$1,240,609	$1,240,000	$940,000	$300,000 (1)

(1) The reduction of $300,000 is due to the fact that the receipts for the fiscal year 1933, on which the appropriation for 1934 is based, are estimated at approximately $3,700,000, whereas the amount in the 1933 Budget was based on estimated receipts of approximately $5,000,000.

WORK UNDER THIS APPROPRIATION

Twenty-five per cent of all money received from each National Forest during any fiscal year is paid at the end thereof by the Secretary of the Treasury to the State or Territory in which the National Forest is situated, to be expended as the State or Territorial legislature may prescribe for the benefit of the public schools and public roads of the county, or counties in which the National Forest is situated. When any National Forest is in more than one State or Territory or county, the distributive share to each from the proceeds of the forest is proportionate to its area therein.

(w) COOPERATIVE WORK, FOREST SERVICE

Appropriation, 1932	$1,700,000
Appropriation, 1933	1,700,000
Budget Estimate, 1934	1,676,545
Decrease	23,455

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Construction or Improvements	$1,777,024	$1,209,000	$1,209,000	- - -
Maintenance of Improvements	73,057	65,000	65,000	- - -
Prevention and Suppression of Forest Fires	250,000	250,000	250,000	- - -
Disposal of Brush and Other Debris in Timber Sale Operations	128,364	120,000	120,000	- - -
Forest Investigations	7,000	25,000	25,000	- - -
Administration	10,000	10,000	10,000	- - -
Reforestation	5,000	5,000	5,000	- - -
Refunds to Cooperators	2,729	16,000	16,000	- - -
Legislative furlough deduction	- - -	- - -	-23,455	23,455 (1)
Total	2,253,174(a)	1,700,000	1,676,545	23,455

(1) $23,455 reduction on account of continuation of legislative furlough.

(a) The expenditures in 1932 exceeded the estimate of $1,700,000 because actual deposits of cooperators exceeded this estimate.

WORK UNDER THIS APPROPRIATION

All moneys received as contributions toward cooperative work in forest investigations, or the protection and improvement of the National Forests, including deposits received from timber purchasers to cover the cost to the United States of disposing of brush and other debris resulting from cutting operations in sales of National Forest timber, are covered into the Treasury of the United States and constitute a special fund, which is appropriated and made available until expended as the Secretary of Agriculture may direct, for the payment of the expenses of the investigations, protection, or improvements of the Forest Service, and for refunds to the contributors of amounts paid in by them in excess of their share of the cost of investigations, protection, or improvements.

(x) PAYMENTS TO SCHOOL FUNDS, ARIZONA AND NEW MEXICO, NATIONAL FORESTS FUND

Appropriation, 1932	$40,000
Appropriation, 1933	40,000
Budget Estimate, 1934	25,000
Decrease	15,000

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Payments to the Common School Funds of Arizona and New Mexico on Account of Receipts from State Lands Administered as Parts of National Forests	$30,834	$40,000	$25,000	$15,000 (1)

(1) The reduction of $15,000 is due to the fact that the receipts for the fiscal year 1933, on which the appropriation for 1934 is based, is now estimated at less than at the time the 1933 Budget estimate was made.

WORK UNDER THIS APPROPRIATION

At the close of each fiscal year there is paid by the Secretary of the Treasury to each of these two States, as income for its common-school fund, such proportion of the gross proceeds of all the National Forests within the State as the area of lands granted to the State for school purposes within these forest reserves may bear to the total area of all National Forests within these States.

(y) ROADS AND TRAILS FOR STATES, NATIONAL FORESTS FUND

Appropriation, 1932	$600,000
Appropriation, 1933	500,000
Budget Estimate, 1934	370,000
Decrease	130,000

PROJECT STATEMENT

Projects	Expended 1932	Estimated 1933	Estimated 1934	Decrease
Construction and Maintenance of Roads and Trails within the National Forests	$500,293	$500,000	$370,000	$130,000 (1)

(1) The decrease of $130,000 is explained as follows:

(a) A reduction of $120,000 is due to the fact that the receipts for the fiscal year 1933, 10% of which determines the amount of this appropriation for 1934, is now estimated at less than at the time the 1933 Budget estimate was made. (b) $10,000 reduction on account of continuation of legislative furlough.

WORK UNDER THIS APPROPRIATION

The appropriation is used for the construction and maintenance of roads and trails within the National Forests.

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Note: Also see Miscellaneous Section for "Forest Roads and Trails", and "Soil Erosion Investigations".

(Continued in Volume 2, Page 127)